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Study on Renewal and Working of Patents in India and Need for Reforms

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The Patents Act, 1970 provides exclusive rights to a patentee for a term of 20 years in India with the implied obligations that the patentee will work patented invention at commercial scale within reasonable time frame and make it available to publicat reasonable price. As stipulated in the said Act under Section 146 (2), patentees/licensees are requiredto submit a statement on working of patents to the Patent Office. The Govt. of India has been incorporating appropriate amendments in post-grant patent system/procedure and modelling the business environment to make it entrepreneur friendly. One of the important outcome of such a system is making available of data on patents granted/in force/worked/not worked in public domain. What is lacking is the analysis of this data on various counts such as action taken by the Patent Office on non-submission of information by patentee/licensee, time frame of commercialization of patented inventions and pattern of period for which the patents are kept in-force but not worked. This study is an attempt to bridge this gap on thesethree aspects. The patents granted in the field of chemicals have been studied in particular to examine whether there is any change in the pattern of renewal/commercialization *vis-à-vis* patents granted in other fields of inventions. Additionally, formulation of policy/incentives have been suggested to encourage patentees to submit the statements on working of patents and to accelerate the pace of commercialization of patents in India.

Keywords: Patent, Invention, Working of Patent, Patent's life, Renewal Fee, Form 27

India is a fast growing major economy of the world with a large market and aspiring consumers. The 2026 'World Economic Outlook' of International Monetary Fund (IMF) listed India as the sixth largest economy in the world.[1] GDP of the country has risen from 270 billion Dollars in 1991 to more than 4 trillion Dollars now. Eco-system for manufacturing activities in India is quite favorable particularly in view of the National Manufacturing Mission of India as announced in the Budget for 2025-26.[2] India, having vast R&D infra-structure and adequate resources, cannot remain merely a consumer of imported products generated through patented inventions, rather it should work the patents on commercial scale in India via transfer of technology from the patentee or developing on its own thereby making the patented products available to public at affordable price.

The growth in patenting stands testimony to India moving towards meeting the objectives of Article 7 of TRIPS Agreement, but only partly.[3,4] In addition to promoting patenting activities in member countries, Article 7 also advocates for transfer and dissemination of technology in the society for mutual advantage of producer and user of this knowledge. Needless to say that for transfer and dissemination of technology in society it is desirable that the patented invention is worked in the country.

Under the Patents Act, 1970, after the grant of patent, a patentee/licensee is required to maintain patent by paying renewal fee under Section 53 and furnish statement regarding working of patent on commercial level in India in prescribed manner under Section 146 (2).[5] The present study centers around post-grant related activities pertaining to patent which include renewal and commercialization of patents in India.Collecting data and analyzing it to co-relate number of patents with number of years of their life and their working on commercial scale in India forms a part of this study in general and in particular for gauging post-grant related activities. Patents belonging to chemicals have been studied specifically to understand whether there is any variation in the patterns of renewal and commercialization of this group *vis-à-vis* the pattern of other than chemical inventions. Additionally, the reasons for not working given in Form 27 submitted to the Patent Office or delay in working on commercial scale in India have been

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analyzed to suggest changes in the Patent Rules/procedure.

Against this backdrop, it is pertinent to peep in the history of determination of amount and stages of renewal fee in India.

Determination of Renewal Fee -Considerations therefor

Under the Indian Patents and Designs Act, 1911, the term of patent was 14 years. It was enhanced to 16 years w.e.f. July, 1930. For the purpose of renewal fee, it was thought appropriate to divide the term of 16 years into four blocks each of four years *viz*: 0-4, 5-8, 9-12, and 13-16 years.

Under the Patents Act, 1970, the term of patent was 14 years.The renewal fee prescription was as under:

Up to 2 years from date of patent: NIL,

for 3rd year: Rs 50/-, for 4th year: Rs 100/-, for 5th year: Rs 200/-,

for 6th year: Rs 250/-, thereafter increasing by Rs 50/- each year, thus

for 7th year: Rs 300/-, ---so on till 13th year Rs 600/-, but for 14th year: Rs 700/-.

The term of patent was enhanced to 20 years *w.e.f.* 20 May, 2003 under the Patents (Amendment) Act, 2002 onwards. The renewal fee prescription was revised by introducing two categories of patentees *viz*: 'Natural Person' (NP) and 'Other than Natural Person'(ONP).The term of 20 years was divided in to five blocks of 2,4,4,5 and 5 years in respect of the amount of fee required to be paid annually by the patentee to maintain the patent vide the Patent Rules, 2003.[6]

After the TRIPS compliant Patents Act came into force *w.e.f.* 1.1.2005, the renewal fee prescription was revised vide the Patents (Amendment) Rules, 2006 and made effective retrospectively from 1.1.2005. The revised fee prescription was like - for 'Natural Person' for each of the renewal block year - Nil (For initial 2 years), Rs 500/- (3rd to 6th year each), Rs 1500/- (7th to 10th year each), Rs 3000/- (11th to 15th year each), and Rs 5000/- (16th to 20th year each).[7] The renewal fee for 'Other than Natural Person' was 4 times the amount as applicable to 'Natural Person'.

Patentees have been further classified into different categories *viz*: 'Natural Person' (NP), startup (SU), small entity(SE),educational institution (EI) and 'Other than Natural Person' (ONP).Consequently, renewal fee was revised retaining the block of renewal segments of years but enhancing the fee. The current fee structure is as under:

Renewal Segmentof Years	P, SU, SE, EI	ONP
For 2 years	NIL	NIL
3rd to 6th year (per annum)	880	4400
7th to 10th year (perannum)	2650	3200
11th to 15th year (perannum)	5300	26400
16th to 20th year (per annum)	8800	44000

From above, it may be noted that therenewal fee for NP is 20% of the renewal fee as applicable to ONP. Renewalfee required to be paid in physical mode has been mentioned because payment through electronic mode was not there in earlier years.

Thus, it may be inferred thatthe Patent Office from time to time has followed different renewal fee regimesnamely:

(1) enhanced after every block of four years under the Patents and Designs Act 1911;
(2) enhanced generally on yearly basis under the Patents Act, 1970;
(3) enhancement spread over blocks of 2,4,4,5,5 years from 20 May, 2003 onwardsvide the Patent Rules 2003 as amended from time to time.

Data has always been the backbone for effective policy intervention. Source of data for the study is the Patent Office web-site, in particular InPASS (Indian Patent Advanced Search System). The data from InPASS was accessed during August 2025 to March 2026. The collected details from the Form 27 submitted by patentees were first analyzed as a pilot study for period of October, November and December, 2005, chosen arbitrarily. The year 2005 was kept as base year keeping in view that the Patents Act, 1970 was made TRIPS compliant *w.e.f* 1.1.2005.

Pattern of patents granted during period of October,November and December, 2005 is given in Table1, below.Responses of patenteesmade in Form 27 regarding working and not-working of patents are given in Annexure 1.It is observed from Annexure 1 that many of these reasons for not working appear to be mere excuses.

Month-wise analysis of pattern of submission of F 27 and reasons given by the patentees for not working of patented inventions showed similarities irrespective of number of patents granted in the month. In the subsequent years 2010 and 2015, chosen arbitrarily, with a gap of 5 years, the study was,therefore,limited to the month of October only for undertaking this comprehensive study covering around 3650 patents belonging to NPs and ONPs in all fieldsof inventions

Table 1 — Number of Form 27 Submitted during the months of October, November and December, 2005

Period of the year of patents' grant	Total No. of patents granted during the period	Reported as Worked (F 27)	Reported as Not-Worked (F 27)	No-Response (F 27)
Oct. 2005	123	12 (9.76%)	27 (21.95%)	84 (68.29%)
Nov. 2005	153	21 (13.73%)	28 (18.30%)	104 (67.97%)
Dec. 2005	291	41 (14.09%)	78 (26.80%)	172 (59.11%)

Table 2 — Number of patents granted during period of various years

Period of Year	Number of Patents Granted	Field of Invention	
		Chemicals	Other than Chemicals
Oct. – Dec. 2005	567	203 (35.80%)	364 (64.20%)
Oct. 2010	399	203 (50.88%)	196 (49.12%)
Oct. 2015	552	264 (47.83%)	288 (52.17%)
Oct. 2017	1087	539 (49.59%)	548 (50.41%)
Oct. 2018	1044	512 (49.04%)	532 (50.96%)

unlike the studies made by researchers on specific type of institutions or field of invention.[8&9] The study wasparticularly extended for the years 2017 and 2018 in order to observe the impact of National IPR Policy announced during 2016. Beyond the year 2018, the study was not extended by design as the period available for commercialization by the patentees appeared to be too short to commercialize the patented invention. Further, the fields of invention have been bifurcated in to two broad categories *viz:* 'Chemicals' and 'Other than Chemicals'. Chemicals and a large number of related fields of invention such as bio-chemistry, bio-technology, agro-chemicals, fertilizers, drugs, pharmaceuticals, food, metallurgy, textile, polymer, have been included under 'Chemicals'. Remaining areas of invention have been treated as 'Other than Chemicals'. It is proposed to study the pattern of life of patents and analyze the details of working of patents submitted in Form 27 by the patentees/licensees to the Patent Office in these two broad fields.

Pattern of Grant of Patents

Table 2, given below, depicts the number of patents granted by the Patent Office during the period October to December 2005, and in the month of October of years 2010, 2015, 2017 and 2018. It would be noted that during October to December 2005 lesser number of patents (percentage wise) have been granted in the field of 'Chemicals' (35.8 %) as compared with those of 'Other than Chemicals' (64.20 %). However, in subsequent year in October 2010,a rising trend in percentage of number of patents granted in the field of 'Chemicals' (50.88 %) as compared with the patents granted in 'Other than Chemicals' (49.12 %) is observed. Broadly, similar rising trend is reflected in respect of number of patents granted in the month of October of years 2015, 2017, and 2018. Perhaps this could be due to the induction of product patent *w.e.f* 01.01.2005.

Life of Patents

TRIPS compliant Patents Act, 1970 provides for grant of patent for a term of twenty years, irrespective of field of invention, subject to payment of the annual renewal fee. A patentee, if so desires, can pay annual renewal fee for two or more years in advance under Patents Rule 80(3). Under this Rule, as per Patents (Amendment) Rules, 2024,effective from15.3.2024 a provision of 10% reduction in renewal fee has been made if the payment is made for at least 4 years in advance *via* electronic mode.[10] Patentees, as observed during the study, have used this provision of making advance payment of renewal fee illustrated as under:

Case 1 -Patent No.349593, Patentee: Hitesh Vaghela, D/o Patent:25.08.2016, Valid upto: 25.08.2036, Renewal fee paid in advance for 3rd to 20th year on25.02.2021, Form 27 not submitted (Information accessed from InPASS on 8.6.2026).

Case 2 -Patent No. 348618, Patentee: Dr Nagendra Prasad K V, D/o Patent: 25.08. 2017, Valid upto: 25.08 2037, Renewal fee paid in advance for 9th to 20th year on 20.03.2025, Form 27 submitted on 14.04.2021stating working status as not worked (under trial) (Information accessed from InPASS on 8.6.2026).

In the above two cases, Case 1 belongs to the period before 15.3.2024 and the other after 15.3.2024. Thus, obtaining renewal for longer period is easy.However, there is a need for creating a

Table 3 — Number of patents granted in the field of 'Chemicals'

Period of the Year of Patents' Grant	Number of Patents having life as per Block of Renewal Years				Total Number of Patents Granted (Life 3-20 Years)
	3-6	**7-10**	**11-15**	**16-20**	
Oct. – Dec. 2005	3 (1.48%)	31 (15.3%)	54 (26.6%)	115 (56.7%)	203
Oct. 2010	2 (0.99%)	34 (16.7%)	52 (25.6%)	115 (56.7%)	203
Oct. 2015	1 (0.38%)	50 (18.9%)	84 (31.8%)	129 (48.9%)	264
Oct. 2017	0 (0.00%)	84 (15.6%)	181 (33.6%)	274 (50.8%)	539
Oct. 2018	3 (0.59%)	113 (22.1%)	289 (56.4%)	107 (20.9%)	512

mechanism to ensure timely furnishing of Form 27 without invoking penalty provision under Section 122. Suggestion(s)to deal with such cases regarding submission of Form 27 has been made under discussion and conclusion parts of this article.

Going by the practice adopted by Patent Office with regard to renewal fee prescription of block of renewal years of 3-6, 7-10, 11-15 and 16-20 years, life of patents granted in the fields of 'Chemicals' and 'Other than Chemicals' have been analyzed. The findings arebriefly described as under:

Patentsin the Field of 'Chemicals'

Excepting the year 2005, when TRIPS compliant Patents Act 1970 came into force, the data regarding life of patents, distributed over four segments of renewal term, has been compiled for the month of October of years 2010, 2015, 2017 and 2018. In the case of the year 2005, data pertains to period October to December, 2005 to observe the impact of TRIPS compliant Patents Act on the grant of patents in a detailed manner.

In the field of 'Chemicals' as given below in Table 3 and Fig.1, it is clear that very few number of patents lived life for 3-6 and 7-10 years. Their number suddenly increases for 11 – 15 years and becomes maximum for the renewal block of 16 – 20 years. For example,3 (1.48%) out of 203 patents granted during October to December, 2005 lived the life of 03 to 06years, 31 (15.3%) of the patents lived life of 07 to 10 years and most of the patents 169 (83%) lived life of 11 to 20 years. The same pattern is observedfrom the patents granted during the periods October 2010, 2015 and 2017.Understandably, the trend for October, 2018 is different because many of patents granted in October, 2018 appear to continue running life in the renewal blocks of 7 – 10 and 11 – 15 years (22.07 % and 56.45 % respectively) resulting in lesser number of patents falling in the renewal block of 16 – 20 years (20.90 %). It is quite likely the patentees whose patents at present falling in the renewal blocks of 3 – 6, 7-10, and 11 – 15 years, may opt for further renewal thereby heading towards raising the number of patents falling in the renewal block of 16 – 20 years.

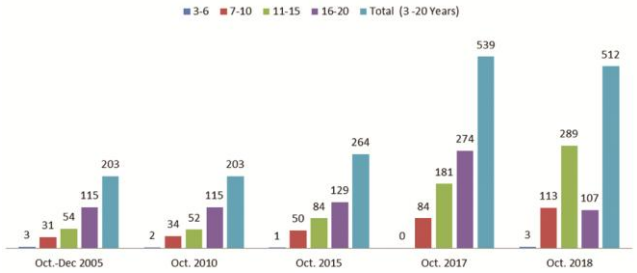


Fig. 1 — Number of patents granted in the field of 'Chemicals'having Lived Life as per block of renewal years

Patents in the Field of 'Otherthan Chemicals'

From Table 4 and Fig.2, given below, it is noted that life of the patents granted in the field of 'Other than Chemicals' follows the similar pattern as in the case of 'Chemicals'. In this case, 8 (2.2%) out of the 364 patents granted lived life of 03 to 06 years and most of the patents, 324 (89%) lived life of 11 to 20 years. Similar pattern is observed for October 2010, 2015, 2017 and 2018 where more than 75% of the patents lived life of 11 to 20 years.

Tables 3 and 4 given above,show that the patentees have a tendency to seek renewal so as to maintain their patent rights for near or full term of 20 years. The moot question that arises is to what extent patents are worked at commercial level as envisaged in Section 83 of the Patents Act, 1970.

Working of Patents on Commercial Scale in India

Patents are granted by the State in exchange of disclosure of invention made by the patentee. Patent is neither necessary nor essential for commercialization of invention. However, it is used as a tool by the patentees to recover the cost incurred on the invention through commercialization of patent. Besides strong

Table 4 — Number of patents granted in the field of 'Other than Chemicals'

Period of Year of Patents' Grant	Number of Patents having Life as per Blockof Renewal Years 3-6	7-10	11-15	16-20	Total Number of Patents Granted (Life 3-20 Years)
Oct – Dec 2005	8 (2.20%)	32 (8.79%)	81 (22.25%)	243 (66.76%)	364
Oct. 2010	3 (1.53%)	35 (17.86%)	45 (22.96%)	113 (57.65%)	196
Oct. 2015	1 (0.35) %	39 (13.54%)	105 (36.46%)	143 (49.65%)	288
Oct. 2017	0 (0.00%)	39 (7.12%%)	197 (35.95%)	312 (56.93%)	548
Oct. 2018	5 (0.94%)	51 (9.59%)	232 (43.61%)	244 (45.86%)	532

patent protection regime, the interest of patentee in working of patented invention depends upon number of factors such as demand in the market, availability of raw materials, trained and skilled manpower, location along with infra-structure, regulatory requirements and clearances required for launch of new technology or product, ease of doing business, applicable tax and custom duty regime, enforcement of patent rights through the legal system, the sector of industry and concerned technology. India has taken many steps to improve regulatory environment in the country by eliminating un-necessary requirements and procedures for easing of business environment. The Jan Vishwas (Amendment of Provisions) Act, 2023 replaces criminal penalties under Sections 120, 121, 122 of Patents Act, 1970 with civil monetary penalties.[11] For these reasons, India is a preferred destination for commercialization of patents.

Submission of Information Regarding Working of Patents

The legislators with great fore-sightedness introduced, for the first time, a unique feature in the form of Section 146 of the Indian Patents Act 1970 effective from 20th April, 1972. As per this Section, it is obligatory on the patentee and licensee to furnish periodic statements in Form 29 regarding the extent to which their patented invention has been worked on commercial scale in India. The above Form 29 was renumbered as Form 27 *w.e.f.* 01.01.2005. This enables and empowers the Controller to keep a close watch on vital aspects of commercial exploitation of the patented invention in India.

Form 27 was amended vide Patents (Amendment) Rules, 2020, dated 19 October, 2020 and subsequently vide Patents (Amendment) Rules, 2024 *w.e.f* 15.03.2024. The details required to be furnished in the Statement as per the latest Amendment are as below:

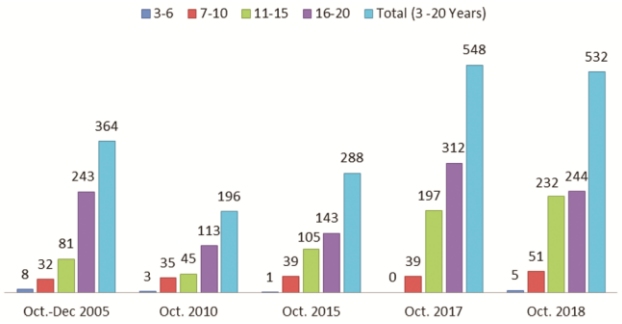


Fig. 2 — Number of Patents Granted in the Field of 'Other than Chemicals' having Lived Life as per block of renewal years

1. State whether each patent in respect of which this form is being filed is worked or not worked.

- Patent Number(s)-- Worked [Tick (√) if applicable]
  Not worked [Tick (√) if applicable]

2. If not worked, please tick the appropriate reasons:

- Patented Invention is under development/commercial trial
- Patented Invention is under review/approval with regulatory authorities
- Exploring commercial licensing
- Any other, may specify:

3. Whether the patent is available for licensing: YES / NO

In case of YES, would you be interested in receiving communications from any person interested in seeking a licence.

Note: 2. Subject to conditions specified under the Patents Act, 1970 a patented invention shall not be considered as 'not worked' merely on the ground that the patented product has been imported in India.

There are material changes in the details asked for working of patent on commercial scale in India in the current format as compared tothe format that was applicable in the year 2005. The details regarding the patents worked in terms of quantum and value stand completely done away with in the year 2024. Over and above, in the year 2024, the frequency of furnishing of Form 27 has been relaxed to once in

Table 5 — Number of Form 27 submitted in various years

Period of the year of patents' grant	Total No. of patents granted during the period	Number of Patents for which		Number of Patents Reported as	
		F 27 submitted	F 27 Not Submitted	Worked	Not worked
Oct. – Dec. 2005	567	207 (36.50%)	360 (63.49%)	74 (13.05%)	133 (23.46%)
Oct. 2010	399	206 (51.62%)	193 (48.37%)	55 (13.78%)	151 (37.84%)
Oct. 2015	552	422 (76.44%)	130 (23.55%)	114 (20.65%)	308 (55.80%)
Oct. 2017	1087	961 (88.41%)	126 (11.59%)	229 (21.07%)	732 (67.34%)
Oct. 2018	1044	933 (89.36%)	111 (10.63%)	207 (19.83%)	726 (69.54%)

Table 6 — Number of patents reported as 'Worked' and their age

Period of the Year of Patents' Grant	Number of Patents Worked and Age as per Block of Renewal Years				Total Number of Patents Worked (Life 3-20 Years)
	3-6	7-10	11-15	16-20	
Oct – Dec 2005	0 (0.00%)	1 (1.35%)	4 (5.41%)	69 (93.24%)	74
Oct. 2010	0 (0.00%)	1 (1.82%)	4 (7.27%)	50 (90.91%)	55
Oct. 2015	0 (0.00%)	8 (7.02%)	27 (23.68%)	79 (69.30%)	114
Oct. 2017	0 (0.00%)	9 (3.93%)	43 (18.78%)	177 (77.29%)	229
Oct. 2018	2 (0.97%)	20 (9.66%)	91 (43.96%)	94 (45.41%)	207

respect of every period of three financial years in place of annually.

The details of working of patent through manufacturing in India, or by import or by combination of the two (in terms of quantum and value) are important inputs for an interested person/competitor to decide to undertake manufacturing activityin India. Omitting such details from Form 27 is a matter of concern particularly when the foot-note inserted in Form 27 in the year 2024 implies import of patented product as good as if the invention worked in India. Import will neither lead to dissemination of knowledge nor is in resonance with 'Make in India Policy' launched in 2014. Further, it does not lead to transfer of technology, manufacturing in India, job creation, growth of GDP of India.On the contrary, it contributes to GDP and economic growth of the country producing the patented product/usingpatented process or country of origin of patent.

Co-relation between Patents Granted *vis-à-vis* Form 27 Submitted

From Table 5, given below, it isnoted that working of patents as reported has ranged between 13 – 21 % of the patents granted during various periods selected for this study. On the other side, the percentage of 'Not-worked' patents varies in the range of 23.46% to 69.45%. This is inconsistent with the general principles applicable to grant of patents. Nonetheless, compliance of Section 146(2) is showing a welcome trend so much so that it reached 89.36 % in October, 2018.

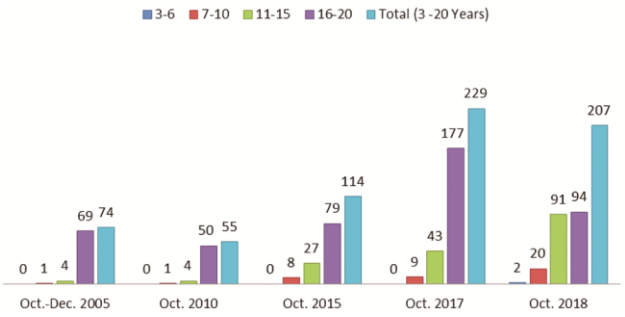


Fig. 3 — Number of patents reported as 'Worked' and their age

Pattern of Life of 'Worked' Patents

From Table 6 and Fig. 3, given below, it is clear that very few number of patents out of 74 are reported to have been worked during 3-6 and 7-10 years of their age. The working of number of patents during block of renewal of 11-15 years appears to gain momentum and suddenly enhances during renewal block of 16-20 years. This shows majority of number of patents 'worked' fall in the age of 16-20 years of term of patent.

Pattern of Life of 'Not-Worked' Patents

During October-December, 2005 the details of number of patents 'Not-worked', as given in Table 7 and Fig 4 below, show that out of 133 patents reported as not-worked, 1 and 3 number of patents fall in the age of 3-6 and 7-10 years respectively; whereas 9 (6.77 %) patents with age between 11-15 years and

Table 7 — Number of Patents Reported as 'Not-worked' and their age

Period of the Year of Patents' Grant	Number of Patents 'Not-worked' and Age as per Block of Renewal Years				Total Number of Patents 'Not worked' (Life 3-20 Years)
	3-6	7-10	11-15	16-20	
Oct – Dec 2005	1 (0.75%)	3 (2.26%)	9 (6.77%)	120 (90.23%)	133
Oct. 2010	0 (0.00%)	10 (6.62%)	40 (26.49) %	101 (66.89%)	151
Oct. 2015	1 (0.32%)	26 (8.44%)	109 (35.39%)	172 (55.84%)	308
Oct. 2017	00 (0.00%)	61 (8.33%)	284 (38.80%)	387 (52.87%)	732
Oct. 2018	5 (0.69%)	91 (12.53%)	388 (53.44%)	242 (33.33) %	726

Table 8 — Number of Patents Reported as 'Worked' and their Age in the Field of 'Chemicals'

Period of the Year of Patents' Grant	Number of Patents Worked and Age as per Block of Renewal Years				Total Number of Patents 'Worked' (Life 3-20 Years)
	3-6	7-10	11-15	16-20	
Oct – Dec 2005	0 (0.00%)	1 (4.35%)	2 (8.70%)	20 (86.96%)	23
Oct. 2010	0 (0.00%)	0 (0.00%)	2 (11.11%)	16 (88.89%)	18
Oct. 2015	0 (0.00%)	5 (13.51%)	10 (27.03%)	22 (59.45)%	37
Oct. 2017	0 (0.00%)	3 (4.41%)	15 (22.06%)	50 (73.53%)	68
Oct. 2018	1 (1.49%)	9 (13.43%)	42 (62.69%)	15 (22.39%)	67

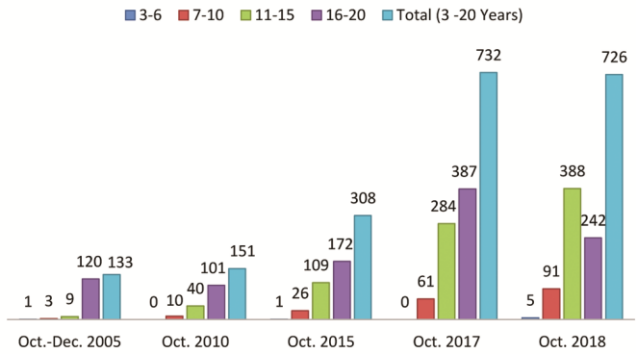


Fig. 4 — Number of patents reported as 'Not-Worked' andtheir Age.

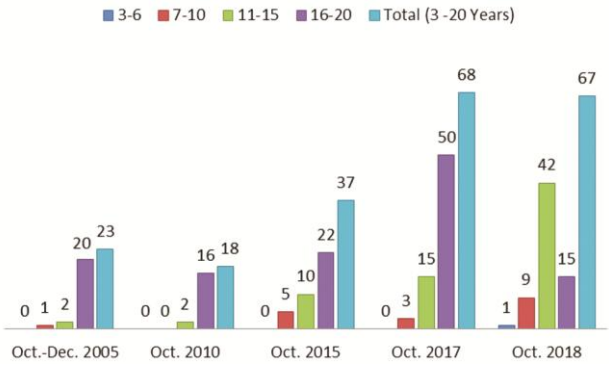


Fig. 5 — Number of patents reported as 'Worked' and their age in the field of 'Chemicals'

120 (90.23%) patents having age between 16-20 years reportedly 'Not-Worked'. Percentage-wise similar trend is noted in case of number of patents reported as 'Not-Worked' in the month of October of 2010, 2015, and 2017. In case of October, 2018, the number of patents is less in the segment of 16-20 years presumably due to the reason that patents granted during October 2018 are yet to reach this block. Table 7, therefore, shows that majority of patents reported as 'Not-Worked' fall in the renewal blocks having age of 11-15, and 16-20 years. Between these two blocks of renewal years, the share of number of patents 'Not-Worked' is higher for age between 16-20 years.

Patents Reported as 'Worked'in the Field of 'Chemicals'

Patents reported as 'Worked' in the field of 'Chemicals' and their age as per block of renewal years are given in Table 8 and Fig. 5 below. Table 8 reveals that for the period October to December 2005, out of 23 'Chemicals' patents 2 (8.70 %) patents and 20 (86.96 %) patents were worked in the block of renewal years of 11-15 and 16-20 years respectively. Similar trend is noted for the month of October of 2010, 2015, and 2017. This shows that patents in 'Chemicals' sector have been worked during 11-15 and 16-20 years of age.Predominantly, the patents were worked during their age of 16-20 years. On the other hand, in October 2018, 42 (62.69 %) patents falling in block of renewal of 11-15 years have been reported as 'Worked' which is greater than 15 (22.39%) number of patents reported as worked during 16-20 years of age. In case of October, 2018, the number of patents is less in the segment of 16-20 years presumably due to the reason that the patents granted during October 2018 have yet to reach this block.

It is worth mentioning that patents which have been worked on commercial scale in India and products sold in Indian market have remarkably servedthe public interest. Some of them by way of example

Table 9 — Number of patents reported as 'Worked' and their age in the field of 'Otherthan Chemicals'

Period of the Year of Patents' Grant	Number of Patents 'Worked' and Age as per Block of Renewal Years				Total Number of Patents 'Worked' (Life 3-20 Years)
	3-6	7-10	11-15	16-20	
Oct. – Dec. 2005	0 (0.00%)	0 (0.00%)	2 (3.92%)	49 (96.08%)	51
Oct. 2010	0 (0.00%)	1 (2.70%)	2 (5.41%)	34 (91.89%)	37
Oct. 2015	0 (0.00%)	3 (3.90%)	17 (22.08%)	57 (74.03%)	77
Oct. 2017	0 (0.00%)	6 (3.73%)	28 (17.39%)	127 (78.88%)	161
Oct. 2018	1 (0.71%)	11 (7.86%)	49 (35.00) %	79 (56.43%)	140

Table 10 — Number of patents reported as 'Not-Worked' and their age in the field of 'Chemicals'

Period of the Year of Patents' Grant	Number of Patents Not Worked and Age as per Block of Renewal Years				Total Number of Patents 'Not Worked' (Life 3-20 Years)
	3-6	7-10	11-15	16-20	
Oct – Dec 2005	0 (0.00%)	2 (4.88%)	2 (4.88%)	37 (90.24%)	41
Oct. 2010	0 (0.00%)	8 (8.99%)	18 (20.22%)	63 (70.79%)	89
Oct. 2015	0 (0.00) %	14 (7.91%)	62 (35.03%)	101 (57.06%)	177
Oct. 2017	0 (0.00%)	46 (11.25%)	149 (36.43%)	214 (52.32%)	409
Oct. 2018	2 (0.50%)	69 (17.34%)	236 (59.30%)	91 (22.86%)	398

(but not limited to) are briefly described in Annexure 2. Just to illustrate, the details of working ofpatent number 196156 are mentioned below:

Patent No. 196156; Patentee: Hindustan Lever Ltd. Mumbai; Title: Oral composition comprising of two formulations kept in contact with each other; Date of patent: 03.05.2001, Date of Grant: 04.10.2005; Expired on: 03.05.2021 (lived for 20 years); Worked through manufacturing in India; Sale proceeds in value terms in INR Crores (1 Crore = 10 Million): 25.31 (FY 2012-13 and 2013-14 each), 26.04 (FY 2014-15), 25.30 (FY 2015-16), 23.69 (FY 2016-17), 26.65 (FY 2018-19), 6.32 (FY 2020-21) and 22.00 (FY 2021-22) Crores; Total: INR 180,62 Crores in eight years.

Patents Reported as 'Worked'in the Field of 'Other than Chemicals'

Patents reported as 'Worked' in the field of 'Other than Chemicals' and their age as per block of renewal years are given in Table 9 and Fig 6 below. Table 9 reveals that for the period October to December, 2005 out of 51 patents of 'Other than Chemicals' category 2 (3.92 %) patents and 49 (96.08 %) patents have been worked in the block of renewal years of 11-15 and 16-20 years respectively. Similar trend of working of patents being far more in 16-20 years as compared to 11-15 years of age of patents is noted for the month of October of 2010, 2015, and 2017. In October 2018, 49 (35.00 %) patents falling in the block of renewal of 11-15 years have been reported as 'Worked' which happens to be lesser than those 79 (56.43 %) patents reported as 'Worked' during 16-20 years of age. This shows number of patents in 'Other

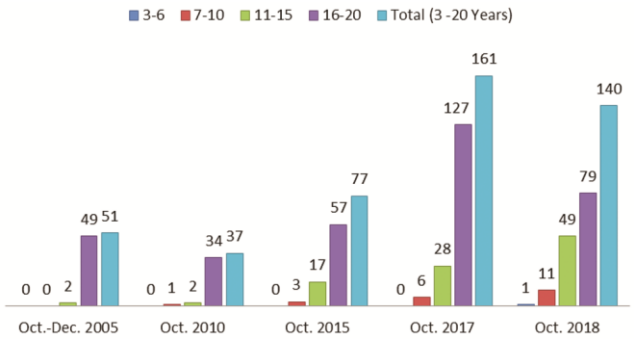


Fig. 6 — Number of Patents Reported as 'Worked' and their Age in the Field of 'Other than Chemicals'

than Chemicals' sector have been worked during 11-15 and 16-20 years of their age and the working of patents in number terms is higher in the block of their age of 16-20 years.

Patents Reported as 'Not-Worked'

Patents 'Not-Worked' in the Field of 'Chemicals'

Patents reported as 'Not-Worked' in the field of 'Chemicals' and their age as per block of renewal years are given in Table 10 and Fig 7 below. Table 10 reveals that for the period of October to December, 2005, out of 41 'Not-Worked' patents in the field of 'Chemicals', 2 (4.88 %) patents and 37 (90.24 %) patents fall in the block of renewal years of 11-15 and 16-20 years respectively. Similar trend is noted for the month of October of 2010, 2015, and 2017. On the other hand, in October 2018, 69 (17.34 %), 236 (59.30 %) and 91 (22.86 %) patents falling in the block of renewal of 7-10, 11-15, and 16-20 years respectively have been reported as 'Not-Worked'.In

Table 11 — Number of patents reported as 'Not-Worked' and their age in the field of 'Otherthan Chemicals'

Period of the Year of Patents' Grant	Number of Patents Not Worked and Age as per Block of Renewal Years				Total Number of Patents 'Not-Worked' (Life 3-20 Years)
	3-6	7-10	11-15	16-20	
Oct – Dec 2005	1 (1.09%)	1 (1.09%)	7 (7.61%)	83 (90.22%)	92
Oct. 2010	0 (0.00%)	2 (3.23%)	22 (35.48%)	38 (61.29%)	62
Oct. 2015	1 (0.76%)	12 (9.16%)	47 (35.88%)	71 (54.20%)	131
Oct. 2017	0 (0.00%)	15 (4.64%)	135 (41.80%)	173 (53.56%)	323
Oct. 2018	3 (0.91%)	22 (6.71%)	152 (46.34%)	151 (46.04%)	328

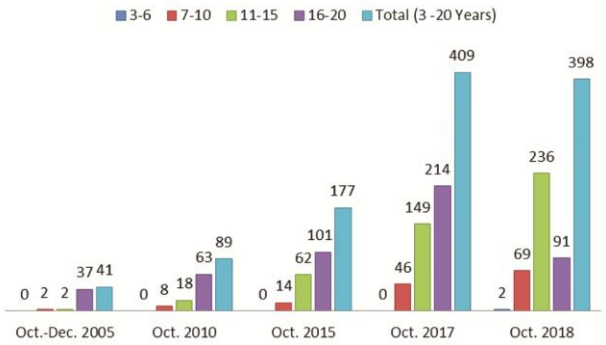


Fig. 7 — Number of patents reported as 'Not-Worked' and their age in the field of 'Chemicals'

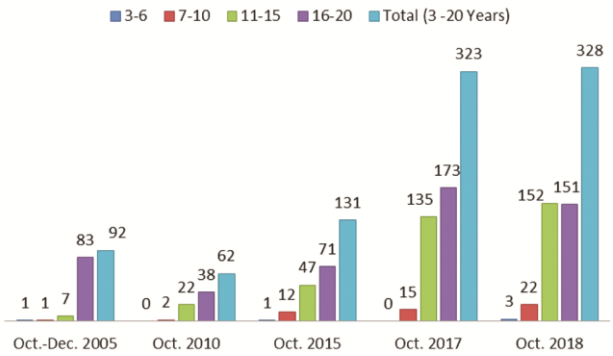


Fig. 8 — Number of patents reported as 'Not-Worked' andtheir age in the field of 'Other Than Chemicals'

case of October, 2018, the number of patents is less in the segment of 16-20 years as compared to patents falling in previous segment presumably due to the reason that the patents granted during October 2018 are yet to reach this block. This shows majority of patents 'Not-Worked' fall inthe blocks of 11-15 and 16-20 years of age.

Patents 'Not-Worked' in the Field of 'Other than Chemicals'

Patents reported as 'Not-Worked' in the field of 'Other than Chemicals' and their age as per block of renewal years are given in Table 11 and Fig 8 below. Table 11reveals thatfor the period October to December 2005, out of 92 'Not-worked' patents in the field of 'Other than Chemicals' 7 (7.61%) and 83 (90.22 %) patents fallin the blocks of 11-15 and 16-20 years respectively. Similar trend of higher percentage is noted in the blocks of renewal of 11-15 and 16-20 years for the month of October of 2010, 2015, and 2017. On the other hand, in October 2018, 22 (6.71 %), 152 (46.34 %) and 151 (46.04 %) number of patents falling in the block of renewal of 7-10, 11-15, and 16-20 years respectively are reported as 'Not-Worked'. The number of patents in the segment of 16-20 years is marginally less in comparison with the previous block as the patents granted in October 2018 are yet to reach this stage. This shows majority of patents 'Not-Worked' fall in the blocks of 11-15 and 16-20 years of age.

Discussion

Observations made and results arrived at, though, are based on small number of around 3650 patents, and corresponding Forms 27, yet are clear enough to trigger reforms by the Government through policy interventions and decision making regarding commercialization and renewal of term of granted patents. However, a deeper study of details submitted by the patentees / licensees in Form 27 is required for formulating policies and strengthening infrastructure which may push and facilitate patentees for early working of patents on commercial scale in India before the innovation becomes obsolete.

Present study reveals that barring a miniscule number of patents which have been reportedly commercialized within 10 years of their age, a large number of patents are either not worked or worked near the end of term of patent thereby not benefiting public with new technologies on desired and expected scale from the early stage(s) of acquiring patent. The study also shows that the trend of non-submission of Form 27 by the patentees / licensees is though reducing year by year, yet significant enough requiring remedial measures. Patentee, who does not submit Form 27 or from the details furnished in Form

27 does not appear to be keen in working of patent in India, deserves to be restricted in public interest from maintaining the patent for its full term. The tendency of patentees who are keen to enjoy exclusive rights granted under the patent for full term of twenty years without working, transferring technology or dissemination of knowledge is not only inconsistent with the spirit of Section 83 but also it is an abuse of patent rights. No visible actions, as noted from InPASS, have been taken by the Patent Office on patentees who do submit Form 27 but furnish insufficient details regarding working of patents such as 'details not available', 'can be provided if asked for' or those patentees who have offered to submit more details about working of patent if required by Patent Office. Action taken against those who do not submit Form 27, despite the presence of penalizing provisions under Section 122 of the Patents Act appears missing. Such conduct, if left unaddressed, would have the effect of rendering Section 146 (2) infructuous. Also, revision of fee structure for renewal of patents is required in public interest.

The importance and relevance of Form 27 in Indian Patent System has been described by Panya Sethi.[12] Form 27 details may become relevant while considering grant of compulsory license by the Controller as well as when deciding patent related disputes by Court(s). For instance, in the matter of Novo Nordisk A S *v* Dr. Reddys' Laboratories Ltd. (DRL), Delhi High Court took into consideration the details submitted by Novo Nordisk in Form 27 (suit Indian patent 262697, Acylated GLP-1 analogues), and noted that the patentee/plaintiff is not manufacturing in India and only importing to India (import value INR 36 Crores and 147 Crores for FYs 2021-22 and 2022-23 respectively). The Hon'ble High Court decided to refuse stay order allowing DRL to manufacture the impugned drug 'Ozempic' (Semaglutide) in India and export to countries where plaintiff does not have a patent.[13] Suitable changes in the Patent Rules should be made to ensure that the patentee / licensee submits relevant information under Section 146(1) or 146(2) at least at the time of renewal of Patent.

Over last few years, the details required to be submitted have been relaxed and periodicity of their submission enhanced. Form 27, revised in 2020 and 2024, does not reflect a coherent approach binding the patentee to furnish details of invention worked on commercial scale in India, particularly in terms of quantum and value of product manufactured. By virtue of foot-note inserted in year 2024 in Form 27, a patentee by importing the patented product into India, may qualify its working in India. However, it is entirely different from 'working of patent in India' as envisaged in Sections 83 and as observed by the Hon'ble Delhi High Court in its decision mentioned above.

Today, the business environment is quite different from what prevailed in the year 1972 when Section 146 was inducted in the Patents Act 1970. The world order is shifting away from globalization (multilateralism, GATT 1994, WTO) to bilateralism (Bilateral Trade Agreement). Under the garb of up-grading ease of doing business, one might think of doing away with Section 146 (2) of the Act. But such an action will defeat the real purpose of this Section which empowers the Controller of Patents to gather information regarding working status of patent (and not to chase/ force the very working of patent) after its grant. This information is to serve public interest and to check the misuse and abuse of patent monopoly. It is highly useful to a prospective competitor. The statutory requirement of submission of Form 27 should continue and be followed rigorously.

Conclusion

From this study of post-grant scenario of granted patents, it is clear that patentees have a tendency to prolong the life of patents to maximum term of 20 years with-out commercializing the patent. This is because the renewal is easy to be obtained by paying the prescribed fee. Further, a large number of patentees do not commercialize the patents in India. Needless to mention here that the disclosure made in Form 27 is of great benefit to the public at whose cost a patent is granted. The patentee has to comply with the requirement of submission of statement of working of patent as per Section 146 (2) following the procedure laid down under Patent Rules (Rule 131). This leads to a scenario which can be coined as 'patent burden' and needs to be addressed with well-planned policy interventions. The question is why not regulate a manageable burden from growing to an unbearable load on public. The cogent remedy for this kind of abuse and misuse of patent system possibly lies in adopting stringent measures for grant of renewal of patents.

The remedial provision to address irregularities in submitting Form 27 is built in the Patents Act 1970 (Section 122). It is observed that this provision is seldom invoked. Time has come to move from penalty treatment model (Section 122 and Jan Vishwas Act) to irregularities prevention model. Failure/Reluctance of the patentee in submitting Form 27 can perhaps be addressed to some extent by asking them, at least at the time of renewal of patent, to submit relevant/additional information under Section 146 (1) or 146 (2), otherwise be subjected to penalty as per Section 122. This could be a check and balance mechanism to address the irregular behavior of the patentee and fill the procedural gap between grant of renewal and submission of Form 27.

Other possible solutions for non-commercialization/delayed commercialization of patents could be raising the renewal fee in a graded manner for the renewal blocks of 11-15 and 16-20 years. In order to prevent obsolescence of technology, appropriate discount/concession in renewal fee could also be considered for early commercialization and regular submission of Form 27 as prescribed in the Patent Rules. Similar to the advisory note mentioning requirement of payment of renewal fee, the requirement of furnishing of Form 27 may also be mentioned in the Patent Certificate (3rd Schedule of Patent Rules).

Further, differing criteria for grant of renewal of patents could be made for inventions in the field of 'Chemicals' and 'Other than Chemicals' patents because these sectors impact the society differently and variably. Sector based policy and regulatory reforms, including induction of heterogeneity in renewal fee prescription and working of patents, particularly in respect of future facing sectors like energy, automobiles, semi-conductors, communication, chemicals including pharmaceuticals, agro-chemicals, medical devices, batteries etc. would be welcome steps. Based on the field of invention, different prescriptions for renewal fee can be designed while re-setting the renewal fee structure. Like-wise, the periodicity for submission of Form 27, may be made variable depending on the field of invention and public interest.

Since patents help in bringing state-of-the-art technologies in manufacturing sector, appropriate measures for facilitating/incentivizing commercialization of patents are important. Such policy reforms should focus on fostering trust among the government, industry, researchers, research institutes and the public. The Government may devise suitable policies or extend financial support such as affordable credit facility, tax holidays, subsidies for taking risk at different stages of working of patent and extending benefits like PLI scheme to make working of patent an attractive proposition.

The Government may initiate a 'National Action Plan on Working of Patented Inventions', either independently or as one of the initiatives under its 'Make in India' flagship program. This could be beginning of a long accelerated leap towards making India a manufacturing hub of patented products and/ or products using patented inventions thereby contributing to innovation based industrial development and knowledge based economic growth of India.

Annexure 1

Reasons for 'Not-Working' of patents and status of 'Worked'patents

(A) Salient reasons for 'Not-Working'

As per Forms 27, reasons submitted to Patent Office by the Patentees, fall under variety of classes such as:
(1) Not worked, (2) Nothing in particular, (3) No Demand of the Product in India, (4) Technical Development still continuing, (5) Looking for Licensee/customer to commercialize, (6) Accessing the Technology and Commercial Aspects, (7) Steps being taken for working, (8) Not working, using alternate process, (9) Patentee has licensed the technology but Licensee not working—Licensee not under control of patentee, (10) Looking for opportunity to work in India, (11) Conducting Market research/ market under survey, (12) Process in early stage of Development, (13) Improvement continuing, (14) Working opportunity not available, (15) Seeking license in India to work, (16) Due to high price of Invention at present—not viable to work in India, (17) Lack of market and distribution channel in India, (18) Transgenic event not yet approved in India, (19) No business plan in India, (20) Low commercial interest, (21) Invention is of strategic importance and can have future scope - a reason given in Patent No. 192981.

(B) Details regarding status of 'Worked' patents

As per Form 27 the status of 'Worked' patents fall broadly under following categories:
(1) Worked (2) Worked in India, but no details about quantity/value of the product produced, (3) Worked in India as well as imported from other countries, (4)

Worked for captive use, e.g. Patent no. 193255, (5) Worked and Licensed to others in India, e.g. patent no. 195158, Babcock, USA; 193776, Alstom Technologies Ltd, Switzerland; (6) Worked in India through grant of License in India, (7) Worked through licensing in many countries including India, however product imported in India; e.g. Qualcom Communications Inc, USA, patents 193901, 193867, 193787, 193382; same is true with Array Com. Inc. USA, patent no. 193616 which was licensed to Intel Corp. USA, and also Intel Corp. USA patent no. 195735; (8) Not manufactured in India, public requirement met through imports, e.g. patent no. 192545, 195447, 195444, 195455; (9) Licenses and sub-licenses given in India - details can be submitted if asked by Patent Office, (10) Patent is part of bundle of patents working in many countries including India e.g. patent no. 183878, 194800.

Annexure 2

Patents Reported as 'Worked' and their Age

(a) Patent No. 193255, Patentee: Vijai Electricals, Hyderabad; Title: An apparatus for cutting multiply amorphous alloy ribbon to the desired length; Date of patent: 09.08.1996; Date of Grant: 10.11.2005; Expired on: 09.08.2016 (lived for 20 years); sale proceeds: Being used by patentee for captive use during FYs 2013-14, 2014-15 and 2015-16; Quantum and Value would be provided if asked for.

(b) Patent No. 194871, Patentee: IIT, Chennai; Title: A device for reducing backlash in gear drives; Date of patent 04.08.2003; Date of Grant: 13.12.2005: Date of Ceasure: 04.08.2014 (lived for 11 years); During FY 2013-14 worked in Vehicle Research and Development Establishment (VRDE) Ahmednagar; project through Bharat Electronics; Defence Specific Requirement.

(c) Patent No. 194875, Patentee: Jacobs Nederland B.V., Title: A method for producing purified liquid Sulphur and an apparatus for producing the same; Date of patent: 10.09.1996, Date of Grant: 19.12.2005; Expired on 10.09.2016 (lived for 20 years); In FYs 2013-14 and 2014-15, patentee granted licenses to Indian Oil Corporation and Essar Oil Ltd; information regarding value of the product not readily available, efforts will be made to collect and submit further information, if asked for.

(d) Patent No. 196653, Patentee; Hindustan lever ltd. Mumbai; Title: Process for preparing detergent bar composition; Date of patent: 08.12.1999; Date of Grant: 08.11.2005; Expired on 08.12.2019 (lived for 20 years); Worked through manufacturing in India; Sale proceeds in value terms in INR Crores: 1080.0 (FY 2012-13), 1144.8 (FY 2013-14), 1100.0 (FY 2014-15), 1225.0 (FY 2015-16), 1300.0 (FY 2016-17), 1471.0 (FY 2018-19); Total: INR 7320.8 Crores in six years.

(e) Patent No. 198166, Patentee: Konkan Railway Corporation Ltd (KRCL), Mumbai; Title: An anti-collision Device (ACD) System for Train Like Transportation System; Date of patent: 24.09.1999; Date of Grant: 29.12.2005; Ceased on 24.09.2018, (lived for 19 years). ACD project on North- East Frontier Railway (NEFR) has been implemented at a cost of Re 100/- Crores. After reviewing performance of the ACD system in January, 2013, the Railway Board decided that the ACD System developed on NEFR has to be continued and maintained by KRCL satisfactorily; the ACD net-work on NEFR and KRCL discontinued in FY 2017-18 at the end of its coded life of 10 years.

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