

G. E. TAFT.

Improvement in Card Stripping Mechanism.

No. 125,501.

Patented April 9, 1872.

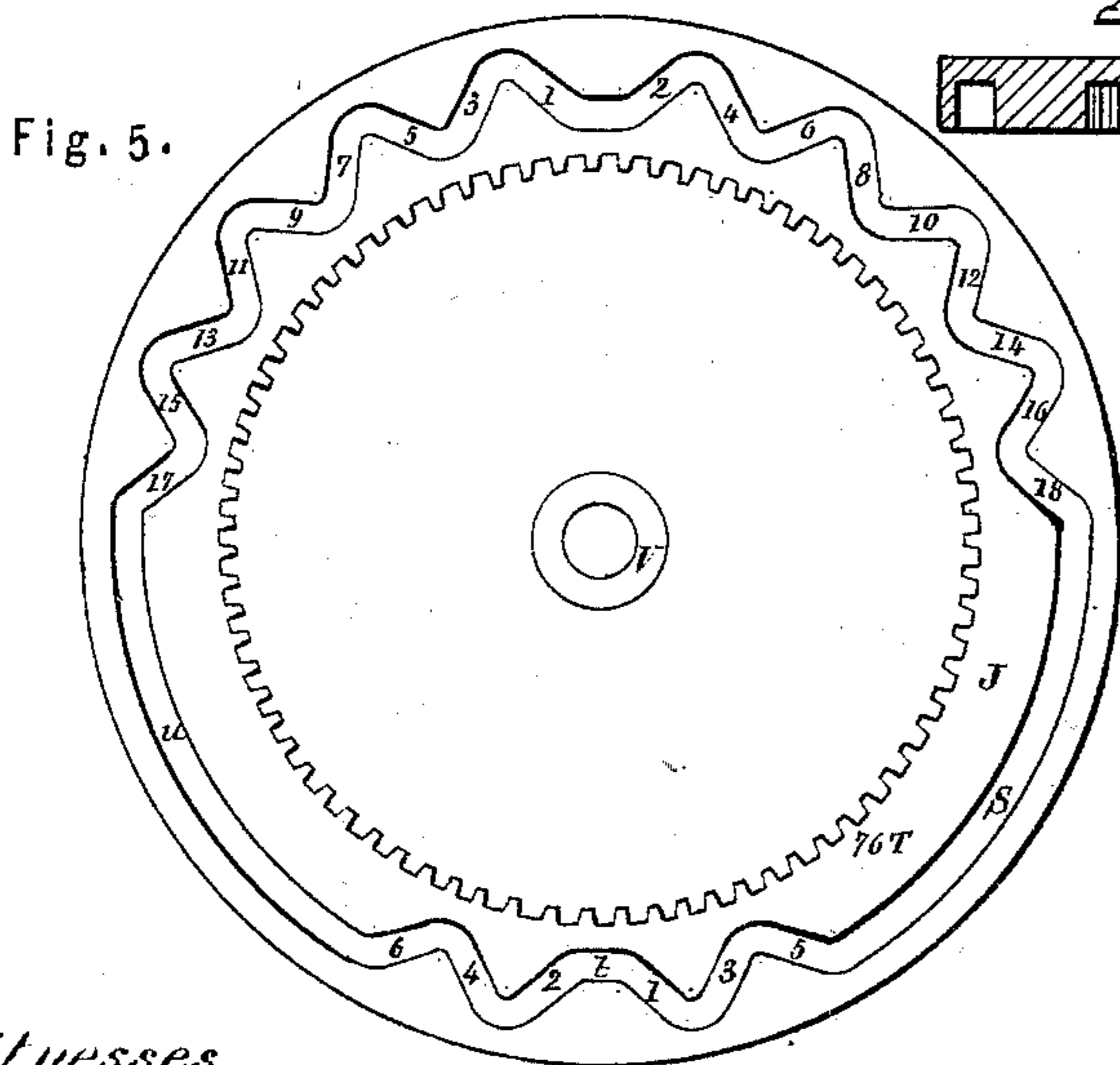
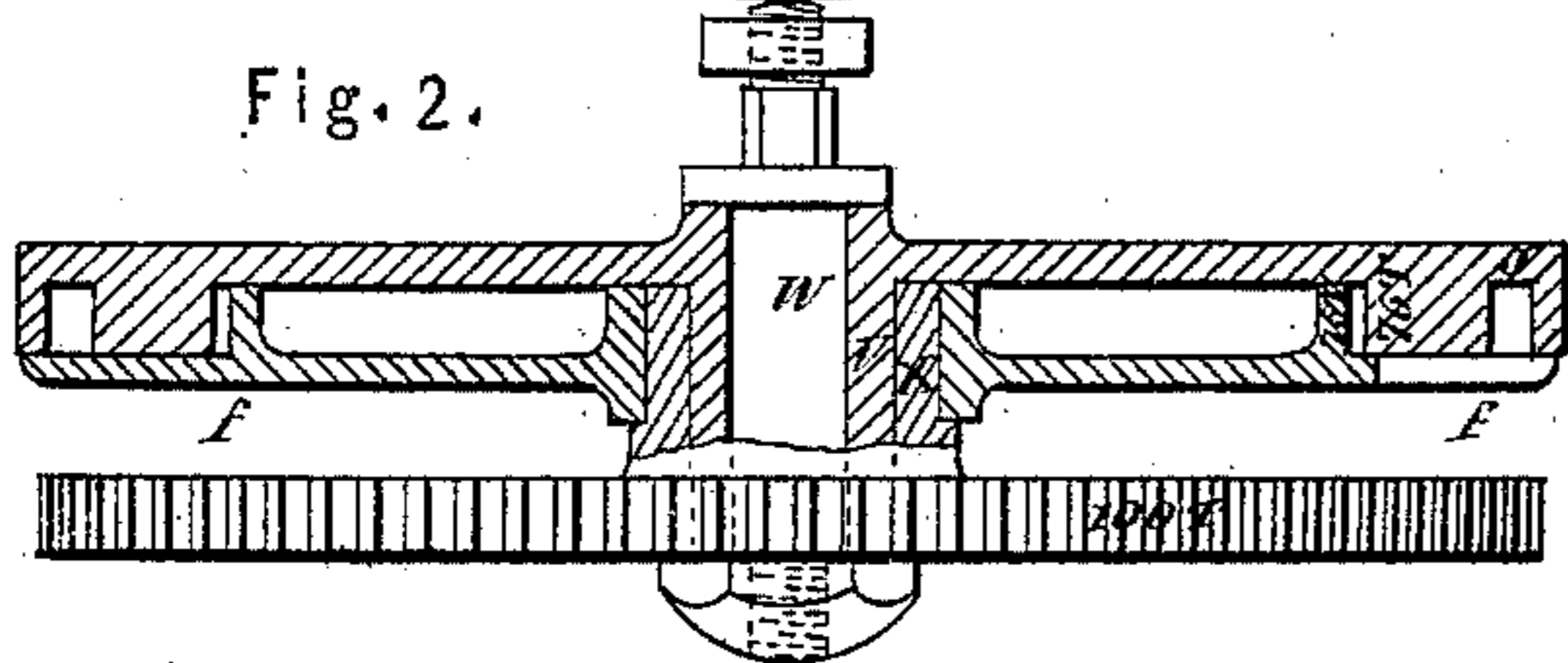
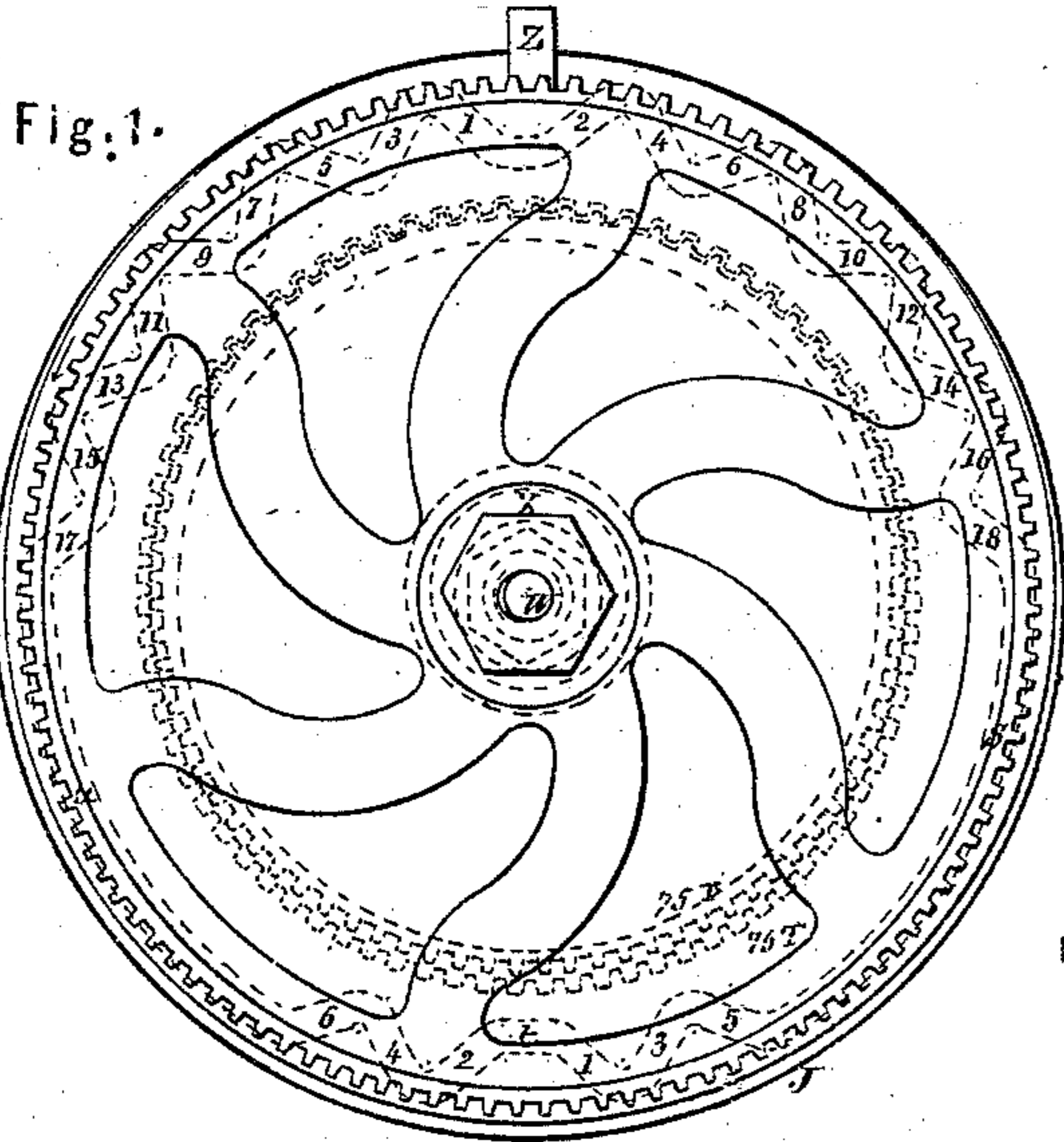


Fig. 4.

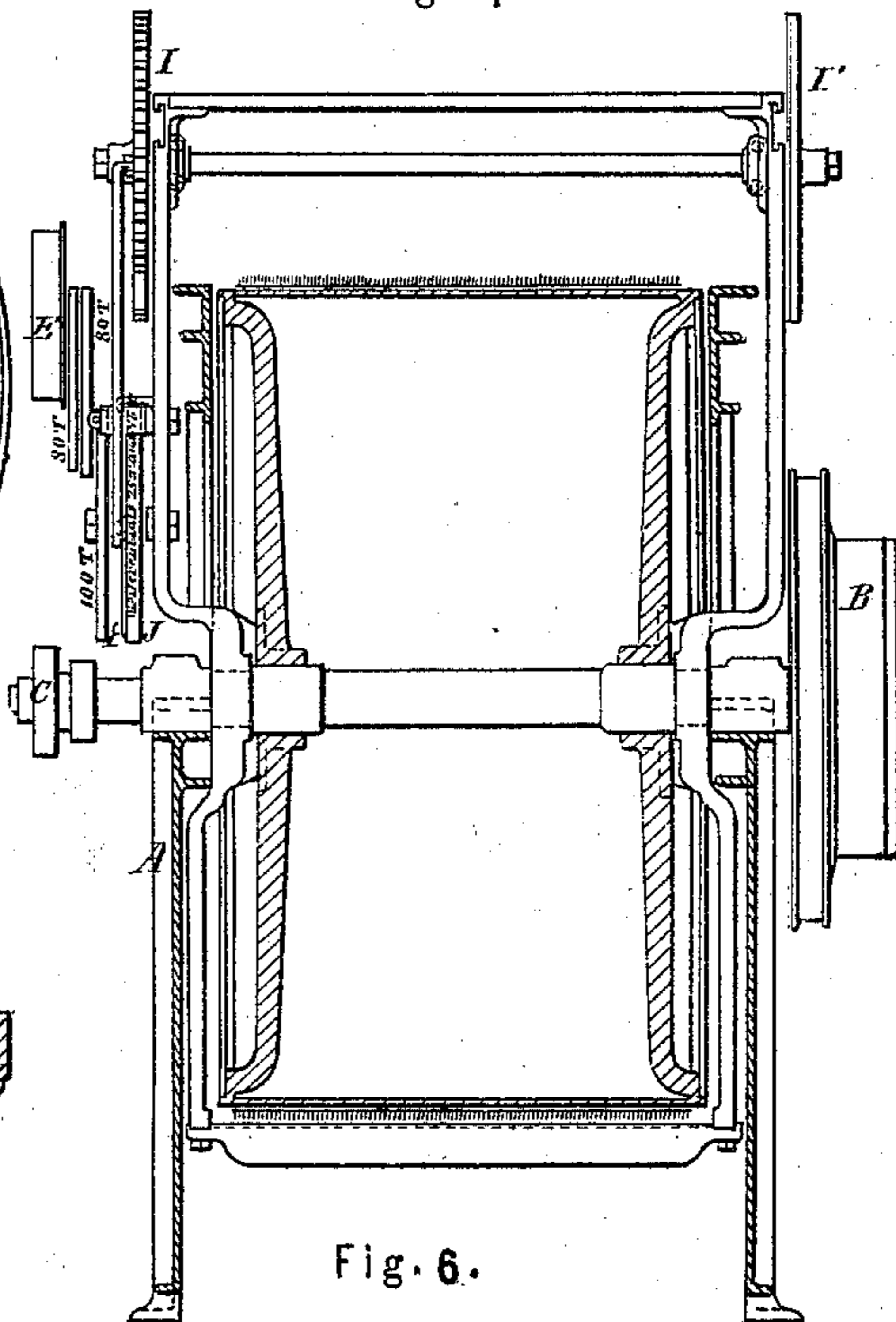
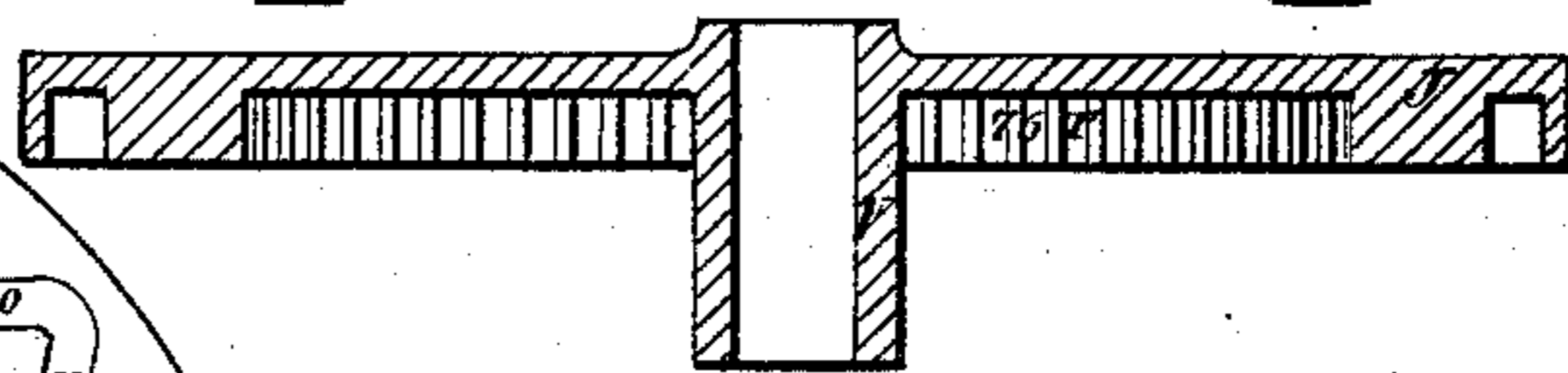


Fig. 6.



Witnesses

R. H. Brown.  
Henry B. Osgood.

Inventor

Gustavus E. Taft.

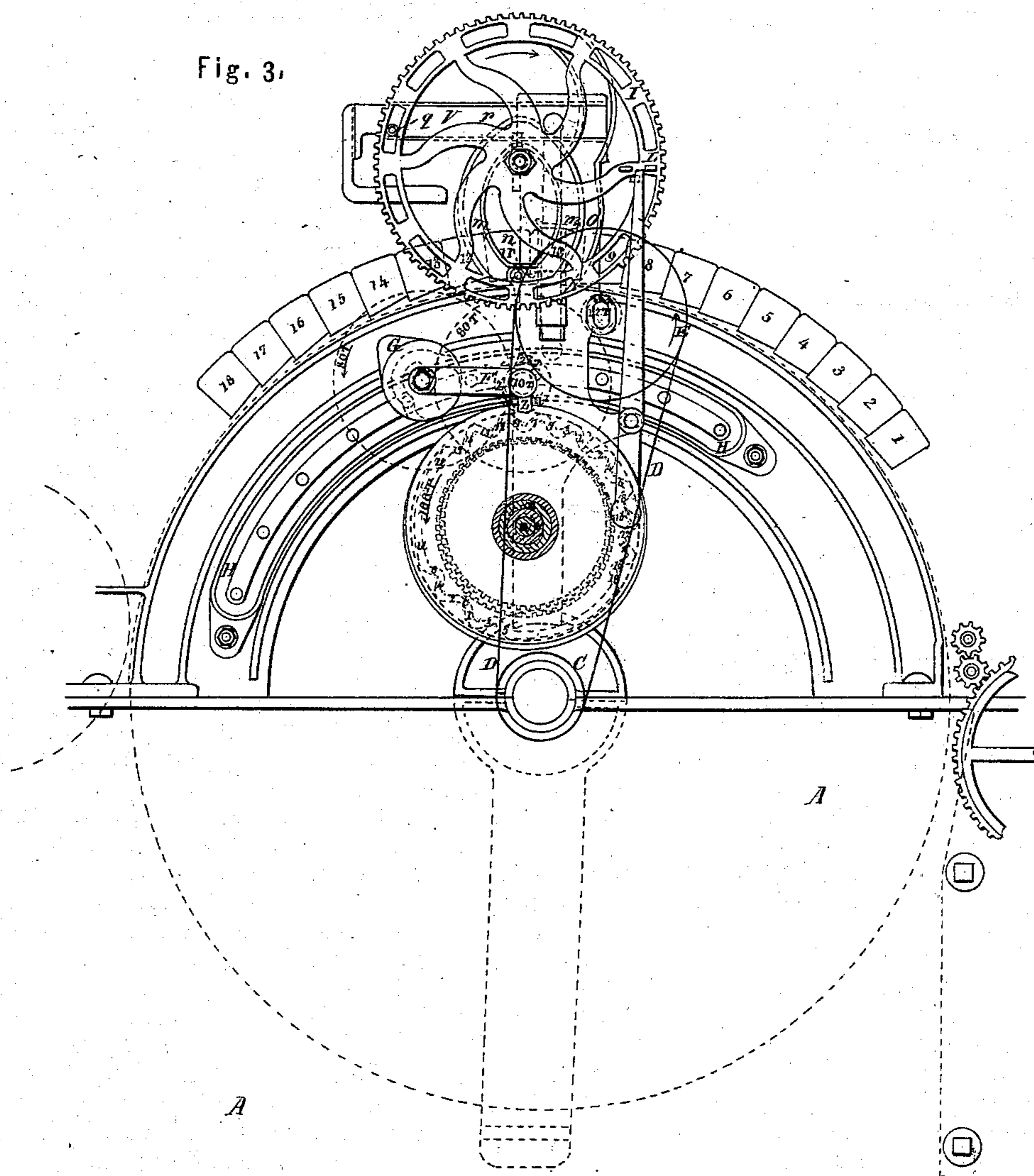
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Fig. 3.



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# UNITED STATES PATENT OFFICE.

GUSTAVUS E. TAFT, OF NORTHBRIDGE, ASSIGNOR TO "THE WHITIN MACHINE WORKS," OF WHITINSVILLE, MASSACHUSETTS.

## IMPROVEMENT IN CARD-STRIPPING MECHANISMS.

Specification forming part of Letters Patent No. 125,501, dated April 9, 1872.

### SPECIFICATION.

I, GUSTAVUS E. TAFT, of Northbridge, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Self-Stripping Cards, of which the following is a specification:

#### *Nature and Objects of the Invention.*

In stripping the top cards of carding-engines automatically so many objects are to be attained that several mechanical devices are requisite, and the tendency is to produce a cumbersome combination. To avoid this, and produce an economical, neat, and easy-running self-stripper, that will commend itself to practical manufacturers and aid in the more extensive employment of useful mechanism, is the object of my present invention.

#### *Description of the Accompanying Drawing.*

Figure 1 is a full-size front elevation of my invention combined with the skip-wheel of John F. Foss. Fig. 2 is a sectional plan of Fig. 1. Fig. 3 is a sectional elevation (one-quarter size) of a cotton-card, showing that side which has the stripper of Foss applied, except that my invention for getting down to the slow speed requisite for the skip-wheel is shown instead of the more exposed and complicated contrivance used by Foss. Fig. 4 is a sectional end elevation, (one-quarter size,) showing vertical sections through axis of card-cylinder, card-frame, and arch, &c., and elevation of the card-stripper frame, and such parts as are necessary in explaining the operation. Fig. 5 is a detail full size of the skip-wheel and its combination with the gear that drives it. Fig. 6 is a section through the axis of same.

#### *General Description.*

A is the card-frame. B is the card driving-pulley. C is the pulley (either fixed or running loose on the main shaft of card-cylinder) from which, through the belt D, motion is communicated to the pulley E on the cleansing-frame of the stripper. The pulley E drives the pinion 12 T, which drives the wheel 80 T. The latter moves the pinion 10 T, which drives the wheel 80 T, which is secured to a short shaft running through the hub of link-arm F.

On the other end of this short shaft is the scroll-cam G, fixed to it, and having the same number of revolutions as 80 T. The traversing or scroll cam G travels on the pins of the rack H, and in so doing traverses the cleansing-frame. When the concentric guides of the cam G are acting on a pin the frame of the cleansing apparatus is stationary, and the top cards are being raised and stripped by means of pinion 16 T and segmental and cam-wheels I and the cam-wheel I'. When the cams of G are acting on a pin the cleansing-frame is being moved from one top card to another. The objections to the Welman stripper were that it did not do the lifting, stripping, and replacing of the top cards quick enough, but kept a top card up so long that the accumulations of the open space would show on the daffer and in the sliver, and also that it did not strip the first top cards (which do most of the work) more frequently than those nearest the daffer, as had been the custom in hand stripping. To remedy these objections Foss combined the skip-wheel J with the cam-wheels I and I' in the following manner: As shown, the skip-wheel is traversing as indicated by the arrow, and has caused to be stripped the top cards 2, 4, 6, and 8 when the pin near the end of the trip-lever K has been in the grooved channel of the skip-wheel J at the points indicated by the corresponding figures 2, 4, 6, and 8 in the groove; and as the skip-wheel is advanced a little further the top of the lever K will pass the check-pin L, when a spring or weight applied to the cam-wheel I' will compel the teeth of I to engage with the pinion 16 T and quickly revolve it, and its cam *m* will act on the pin *n* and cause the clamps to lift top cards 10, and the cam O, acting on the pin *q*, will cause the parallel slide *v* to advance and carry the stripper under the raised top card 10, when it will be slightly dropped and then stripped by the withdrawal of the slide *v*. The cam *m* will then replace the top card, and soon after the scroll or traversing cam G will advance the frame to over 12, and so on to 14, 16, and 18, till the scroll-cam G comes to the end of the mangle-rack H, the positions of the pin to the trip-lever K and their relations to the top cards being indicated by corresponding figures, as before. The cam G is going round

the end of the rack when the trip-lever pin first enters the concentric groove S, and the cam G traversing back on the under side of the rack H, the trip-lever strips nothing till it gets to 5, then 3, and lastly 1, when it strips the top card nearest the feed-rolls; then cam G passes around the end of the rack to the upper side, the trip-lever pin being in the short concentric groove *t*; 2, 4, and 6 are then stripped, when the pin comes to another concentric groove, *u*, and while the pin of the trip-lever is in the groove *u* the cleansing-frame is passing over without stripping 8, 10, 12, 14, 16, and 18. The cam G then passes around the end pin of the rack to the under side, and 17, 15, 13, 11, 9, 7, 5, 3, 1 are then stripped, when the cam G passes around the pin at the other end of the rack H to the upper side and causes 2, 4, 6, 8 to be stripped, and comes to 10, which, as shown by the drawing, is about to be stripped, as before stated. It is necessary to drive the skip-wheel at very slow speed compared with the pulley E, which must be driven at quick speed to do the stripping rapidly. One revolution of the skip-wheel carries the cleansing-frame twice over and back through the extent of its traverse; and it is desirable to reduce speed from the pulley E with as simple, light, and easy-operating machinery as possible.

The arrangement for driving, shown in the drawing, strips in the time, I think, as advantageously as any, and this requires two thousand and twenty-six and two-thirds revolutions of the pulley E, pinions 12T, and 16T, to one of the skip-wheel J. The arrangement for effecting this purpose in the Foss card is as follows: Instead of the spur-pinion 25T he uses a bevel, which gears into another bevel on a short shaft, which has its bearing on the main arm or cleansing-frame and traverses with it, and on this shaft is a worm, which drives a worm-wheel, which forms the rim of the skip-wheel. This arrangement has many parts, and each, having loss of motion, makes so much in the aggregate as to produce inaccuracy and uncertainty in the working of the trip-lever K. Worm-wheels are liable to wear out rapidly, and the parts are exposed and difficult to keep clean, and also add to the size

and weight of the stripper. My invention consists in the combination of the differential gears with the skip-wheel, as more fully shown in Figs. 1, 2, 5, and 6, full size, and are constructed and operated as follows: In the drawing they are shown connected with one of Foss' grooved skip-wheels. Inside the groove is cast the internal gear 76T. The plate combining the skip-wheel and 76T has a hub, V, which is fitted to the stud W, and turns upon it. On this hub turns the eccentric X, which forms part of the hub of the gear 100T. The eccentric X fits the hub of the gear 75T. The gear 75T has a flange, *f*, which covers and protects the groove of the skip-wheel and the teeth of the differentials, and every revolution of the eccentric X causes the gear 75T to move in the orbit governed by the throw of the eccentric, and as the gear 75T is kept from revolving by the part Z, which slides in the guides Z' Z', and the internal gear has seventy-six teeth, it is advanced one tooth at every revolution of the eccentric X, gear 100T, and gear 75T, the last three being secured and turning together. So many teeth are engaged at once, and the eccentric X so constantly presses gear 75T to advance gear 76T, that the pin of the trip-lever K is kept well in its place in the groove and "back-lash" is avoided.

I have described only one set of differentials, but more may be used if deemed desirable.

I do not claim the inventions of George Wellman, Horace Woodman, John F. Foss, or any other patentees of self-stripping cards; but

What I desire to secure by Letters Patent, and claim as my invention, is—

1. The combination, with the skip-wheel, of a card-stripping mechanism of inclosed differential gears, the piece Z, and guides Z' Z', and the gear having the eccentric hub X.

2. Also, the combination with the foregoing of the covering-flange *f*, as and for the purpose described.

GUSTAVUS E. TAFT.

Witnesses:

ROBT. K. BROWN,  
HENRY B. OSGOOD.