

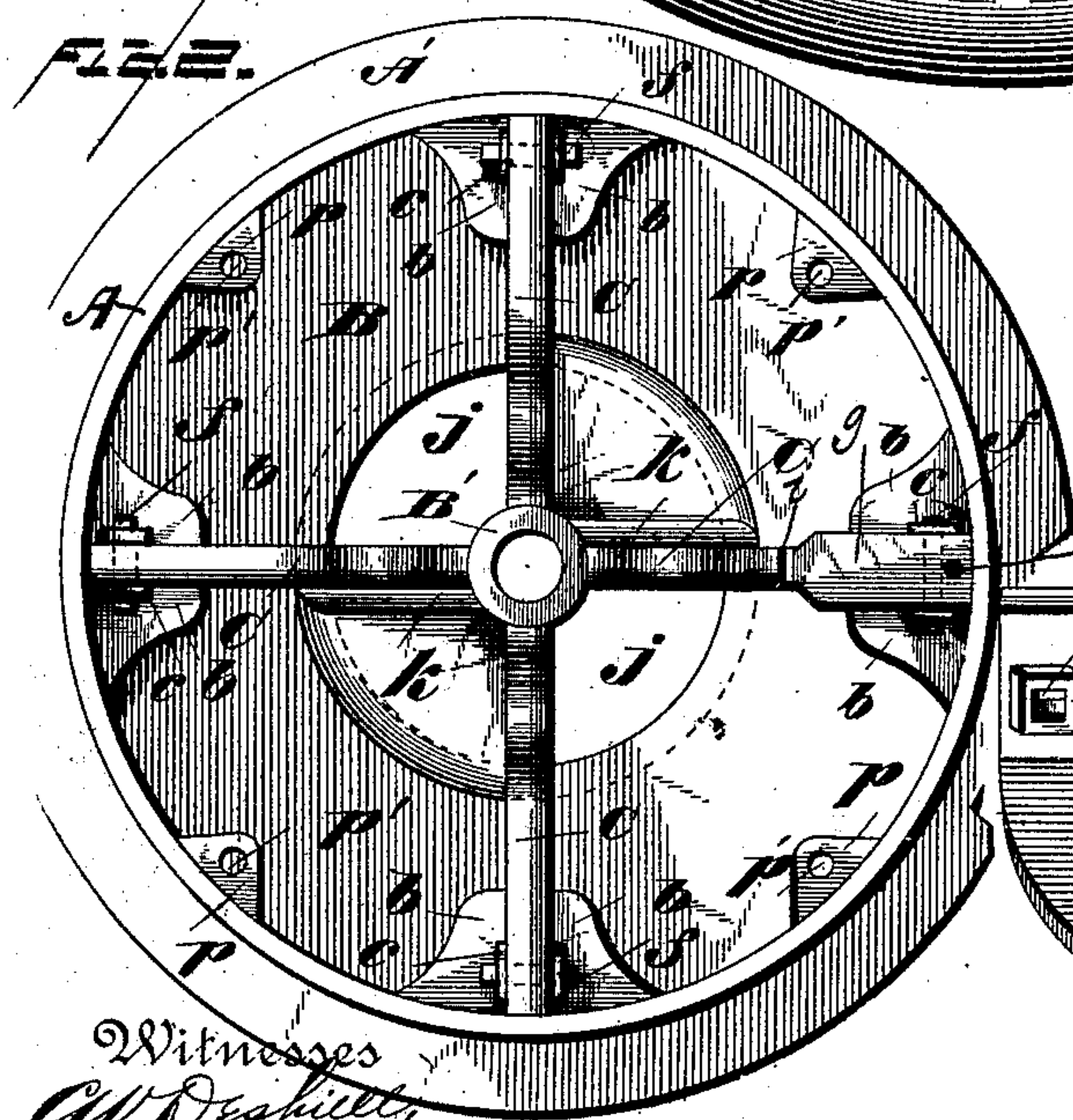
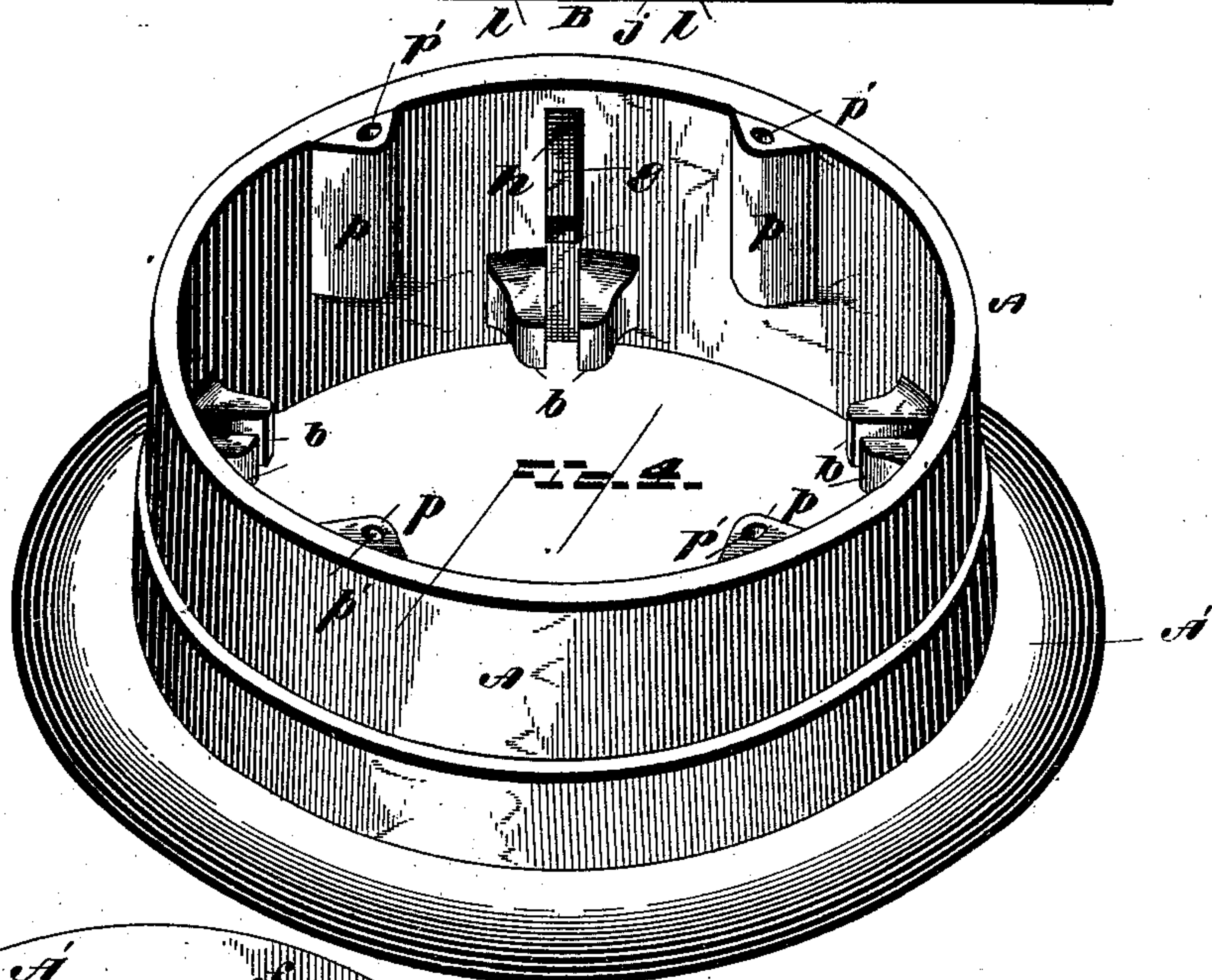
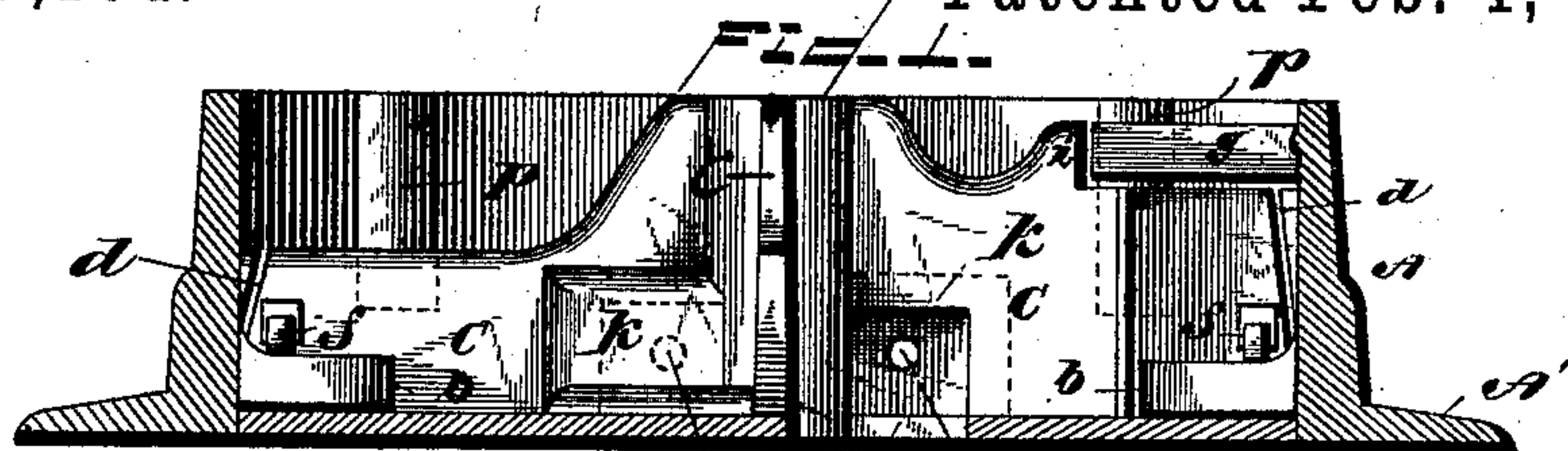
(No Model.)

B. F. WYKER & A. D. STORM.

MACHINE FOR DRAWING WIRE.

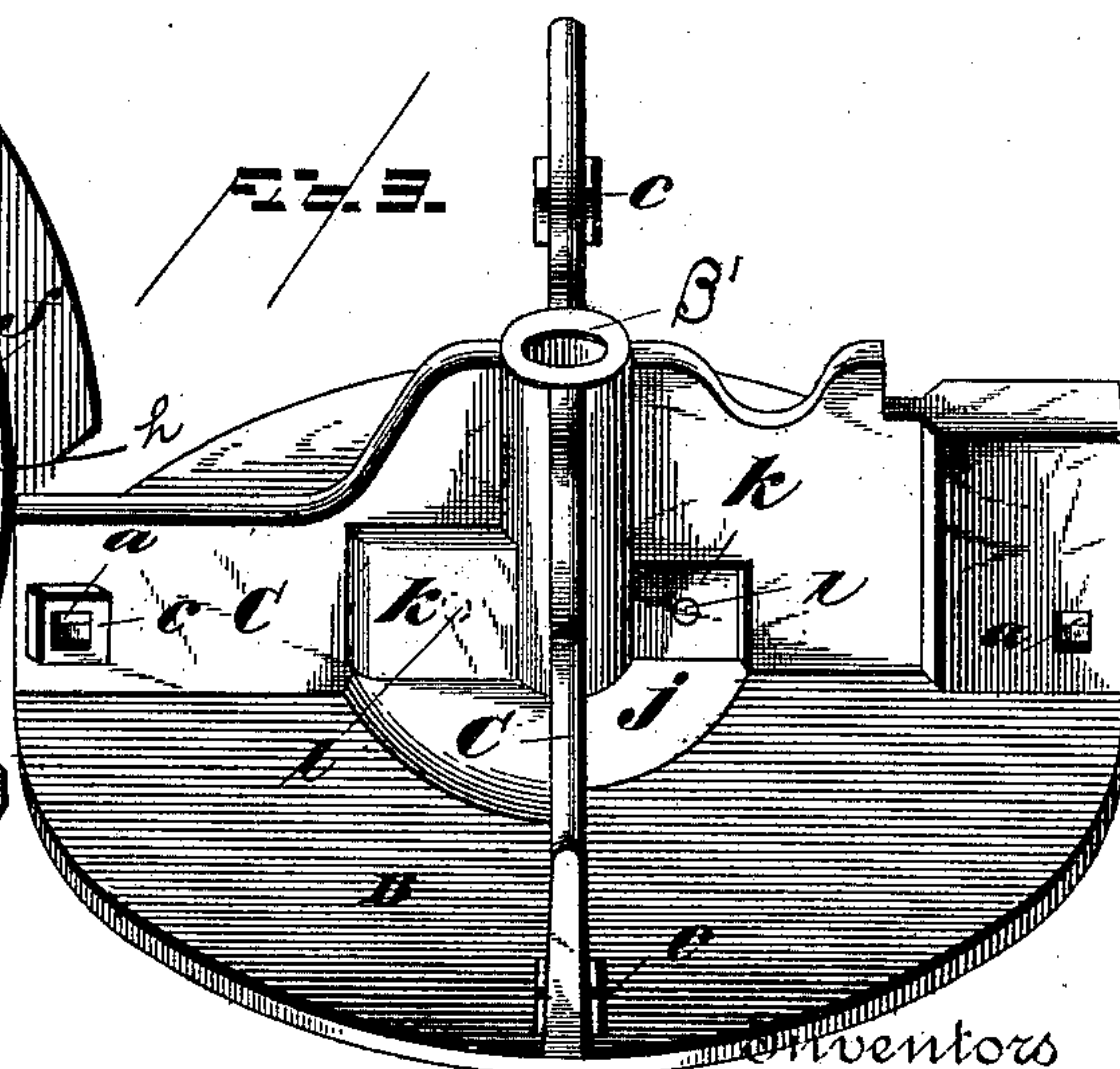
No. 357,164.

Patented Feb. 1, 1887.



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UNITED STATES PATENT OFFICE.

BENJAMIN FRANKLIN WYKER AND ADAM DOLF STORM, OF EASTON,
PENNSYLVANIA, ASSIGNORS OF ONE-THIRD TO GEORGE E. SEIPLE,
OF SAME PLACE.

MACHINE FOR DRAWING WIRE.

SPECIFICATION forming part of Letters Patent No. 357,164, dated February 1, 1887.

Application filed June 23, 1884. Serial No. 135,764. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN FRANKLIN WYKER and ADAM DOLF STORM, both residents of Easton, in the county of Northampton and State of Pennsylvania, United States of America, have invented certain new and useful Improvements in Wire-Drawing Blocks or Pulleys, of which the following is a specification.

10 Our invention relates to that kind of wire-drawing machines in which the reducing-dies through which the wire is drawn is used in connection with a power-driven rotating pulley or drum, sometimes called the "wire-block," "wire-pulley," or "wire-spool," to
15 which the wire is made secure, and which acts both to draw the wire through the die and also to coil it.

20 Our improvement pertains to this spool or pulley; and it consists in making the outer portion or rim and flange separate from the center or driving part, and fitting the latter entirely within the flange and rim, the center or spider being connected to the flange and
25 rim on the interior only, so as to entirely conceal the connections, and make all the parts heretofore subject to wear detachable from the center or driving part.

30 It has been proposed to construct a wire-drawing block with a detachable outer rim having a re-enforce or flange at one side edge combined with a center or spider, also having a flange, the flange of the rim being joined to the flange of the spider, and the last-named
35 flange extending above or outward beyond the first-mentioned flange. In this construction it is obvious that the tight and perfect joint necessary to be made between the flange of the rim and the flange of the spider precludes
40 making the rim of chilled iron. To make the joint between the flange of the rim and the flange of the spider, the last-named flange must be grooved to receive the flange of the rim. By practical test it has been found impossible
45 to make a perfect joint, and it is necessary to have the joint tight and secure from movement for all practical purposes, since even when one secures a perfectly-tight joint at the point of junction between the flange of the

rim and the flange of the spider the continuous rotary motion offers a constant tendency of the joint to loosen and become exposed and the whole drum or pulley to rock. When these disadvantages appear, upon considering the most favorable conditions of the manufacture of the wire block or pulley in question, how much more objectionable would the said block or pulley be should it appear that from the construction stated it is impossible to make a perfect joint? It must be conceded
55 that to make the rim of chilled metal would be preferable, for as the rim must be smooth a chilled rim would not require to be "turned off," (an operation requiring the services of a skilled mechanic,) but would be ready for
60 use at once. Not only this, but a chilled rim will last longer, being very hard, and will not wear down as rapidly as a soft-metal rim; but when a joint is required to be made to hold the flange of the rim to the flange of the spider
65 it is obvious that to make a perfect joint the flange of the rim must be turned down to adjust or fit it neatly in the groove of the flange of the spider or center. Should it be desired to construct the rim and its re-enforce or flange
70 of chilled metal, it will be impossible to make a perfect joint between the rim-flange and the spider-flange, for it is well known to those skilled in the art that chilled iron cannot be turned down to make a joint. Under such
75 circumstances the rim and its re-enforce must be made of soft metal to insure a perfect joint between the rim-flange and the spider-flange, with the result that the rim and its flange will soon wear out, requiring constant renewal,
80 which, aside from the cost of a rim, is objectionable, as necessitating the loss of valuable time in refitting the parts. Furthermore, in the construction noted the joint between the rim-flange and the spider-flange often comes
85 open or exposed, leaving a crevice in which the wire forces itself in reeling or coiling from the reducing-dies, so that in the subsequent unreeling of the wire block or spool the wire is found to be lodged in place, necessitating
90 the stoppage of the work to withdraw the wire from the crevice or opening at the joint. Finally, when the wire block or pulley is filled

with wire, the projecting portion of the spider-flange will be abraded or worn by the wire coming in contact with or paying out upon the flange, causing the spider-flange to become worn down by the action. If the spider-flange is worn to such an extent as to be of no further use, the entire block will then have to be thrown away.

Our invention avoids each and all of the objections heretofore pointed out by providing an improved construction by means of which the rim may be cast of chilled metal for durability. No joint will be required, no flange will be provided on the spider, and the entire center or spider will fit flush within the rim and its flange, and be connected therewith on the interior only. We attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a sectional side elevation of the complete pulley or spool, the rim and its flange being in section and the center in elevation. Fig. 2 is a plan of the same. Fig. 3 is a detached perspective view of the center or spider. Fig. 4 is a detached perspective view of the rim.

Like letters are used to indicate corresponding parts in the several figures.

Referring to the drawings, the rim is represented at A and its flange at A', the latter being formed integral with the rim. The rim and its flange are cast in a chill, thus securing a true surface, hardened to resist the wear to which it is necessarily exposed. Upon the interior of the rim are provided lugs *b*, spaced apart in pairs, as shown, the number of pairs of lugs being equal to the number of arms on the center or spider. In this illustration of our invention the center or spider has four arms, and there are consequently four pairs of lugs, *b*. The lugs which compose each pair are set far enough apart from one another to allow the arm of the spider or center with which they are to co-operate to pass freely between them.

The center or spider consists of a circular base-plate, B, of a size to enter and fit snugly in the flanged end of the rim, a hub, B', and radial arms C, these parts being of one casting. The arms C at their outer ends are formed with slots or key-holes *a*, and around the sides and top of the slots the arms are thickened, as at *c*, to afford more holding-surface for the keys. Each arm C at its outer end slants or inclines slightly toward the center from bottom to top, and on the inner face of the rim, at the points where the arms come, are correspondingly-inclined bearing-faces *d*.

To fasten the parts together, the center or spider is inserted within the rim and flange, the arms C of the center or spider passing through the space between the lugs *b* of each pair. When the center or spider is in proper position, the lugs *b* rest against the base-plate B, while the slots *a* in arms *c* are partly above the lugs *b*. Wedge-like keys *f* are now driven

through the slots, with the effect of drawing the base-plate B and lugs *b* closely and tightly together, thus rigidly fastening the center and rim and flange together, and at the same time leaving them in condition to be readily and conveniently separated from one another whenever this becomes necessary. This connection of the arms C of the spider or center to the lugs *b* of the rim and flange not only serves to hold the parts together, but also prevents the rim and flange from rotating independently of the spider or center.

A convenient provision for holding the vise, which in practice is used to grasp the end of the wire that is being drawn and coiled, is made by forming on the inner face and near the upper end of the rim a lug, *g*, providing a rest for the vise, through which lug is formed a hole, *h*, for the passage of a T-headed bolt, by which the vise is fastened in place on the lugs *g*. The upper part of that arm C which comes opposite this lug *g* is cut away to accommodate the latter, and said arm is also formed at *i* to project above the inner end of the lug, with a view to furnishing a shoulder for one end of the vise to bear against. Around the upper portion of the inside of the rim are formed swells or projections *p*, in which are made vertical holes or sockets *p'*, to receive rods which are used, as customary heretofore in other wire-drawing blocks or pulleys, to extend the face of the pulley or to act as guards to prevent the wire, after it is wound or during the act of winding, from slipping off from the face of the pulley.

The driving part or center is designed in practice to revolve upon a vertical post on the drawing-bench; and to this end the hub B' is bored out to fit upon the post. The interior of the hub B' can, if desired, be bushed in the usual way. Since the center or spider fits entirely within the rim and flange and comes flush with the latter, the block can rest evenly on the bench, since there are no projecting parts on the spider or center to interfere with the free movement of the block or pulley.

The pulley or block we have shown in illustration of our invention is one designed to be driven by a clutch, the parts of which will, when the pulley or block is in use, project up through openings *j j*, formed in the base-plate B on opposite sides of the hub B'. The acting faces of the clutch will bear against two of the arms C, and at the points where they thus bear we form recesses or depressions *k* in the arms for the reception of steel plates, which are inserted in those recesses, and are there held by bolts passing through holes *l* in the thickened portion of the arms C back of said recesses *k*. These plates furnish the faces against which the faces of the driving-clutch bear, and they are vertically slotted at the points where the holding-bolts pass through them, so that they may be adjusted up and down. We do not restrict ourselves to this particular method of driving the pulley. It

is only one of the many different known ways of actuating the same.

It will be observed that in our construction the spider or center is connected to the rim and flange on the interior only, and thus there is no exposed joint on the outside of the drawing-block to wear, or liable to interfere with the proper reeling of the wire. We have no flange on the spider or center, but fit the latter entirely within the flange and rim, leaving no integral part of the block exposed that would be subjected to wear.

In our construction the flange on the rim serves as the flange for the entire block, so that no joint is provided on the outside or exterior face of the block.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A wire-drawing block or pulley having the solid rim A and its flange A' cast integral therewith, which flange A' serves as the only flange for the block or pulley.

2. A wire-drawing block or pulley having the solid rim A and its flange A' cast integral therewith, which flange A' serves as the only flange for the entire block or pulley, the center or spider of which block or pulley has no flange, but is fitted within both the outer rim, A, and its flange A', so as to be connected therewith interiorly only, and thus conceal and protect the joint from wear, as set forth.

3. The rim provided with lugs b, in combination with base-plate B, slotted arms C, and keys f, substantially as and for the purpose set forth.

Intestimony whereof we have hereunto set our hands this 18th day of June, 1884.

BENJAMIN FRANKLIN WYKER.
ADAM DOLF STORM.

Witnesses:

JOHN H. RADD,
CHAS. A. BACHMAN.