

(No Model.)

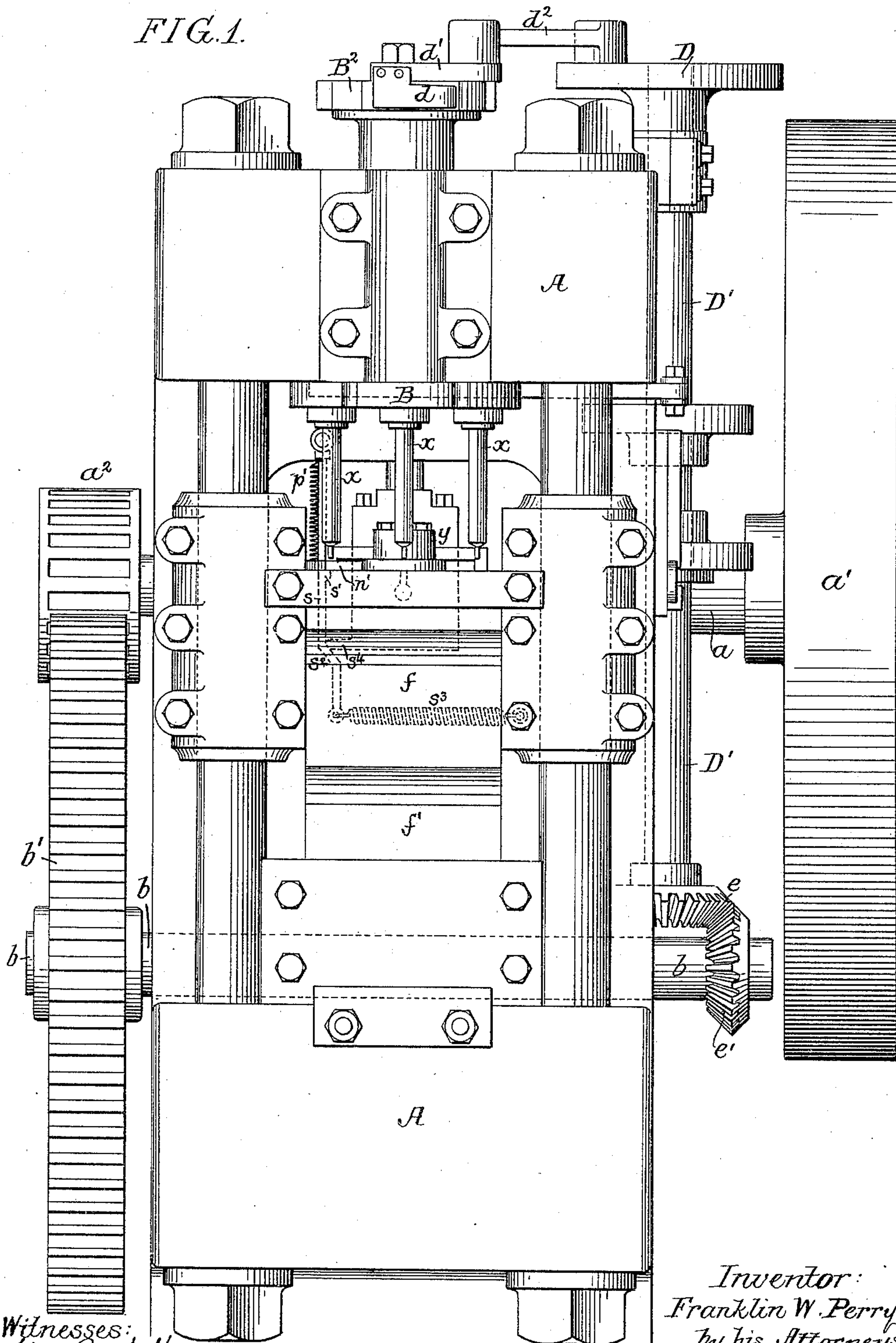
4 Sheets—Sheet 1.

F. W. PERRY.
CAPSULE PRESS.

No. 442,910.

Patented Dec. 16, 1890.

FIG. 1.



Witnesses:
Alex. Barkoff
Murray L. Boyer.

Inventor:
Franklin W. Perry
by his Attorneys
Houson & Mason

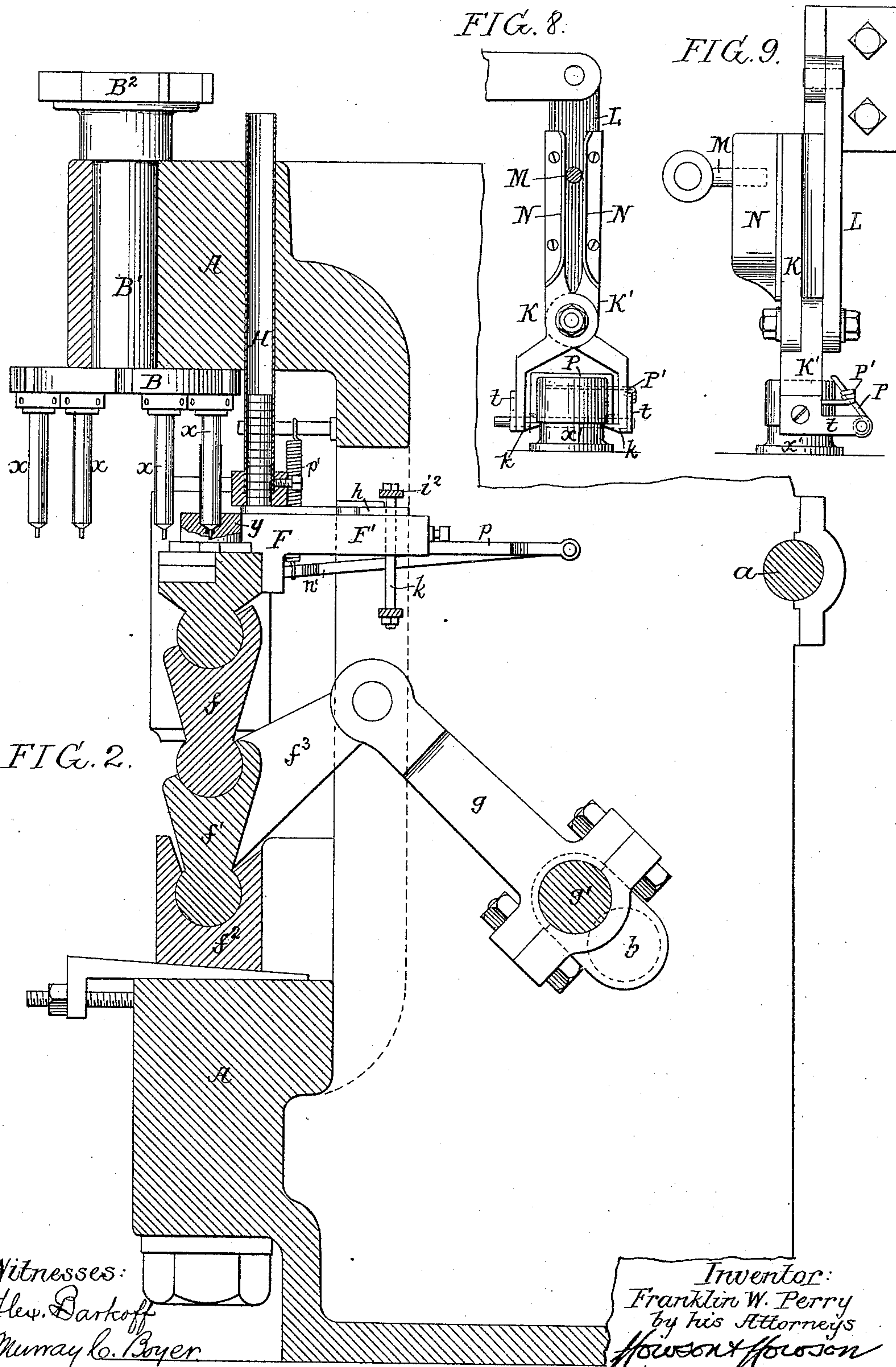
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Patented Dec. 16, 1890.



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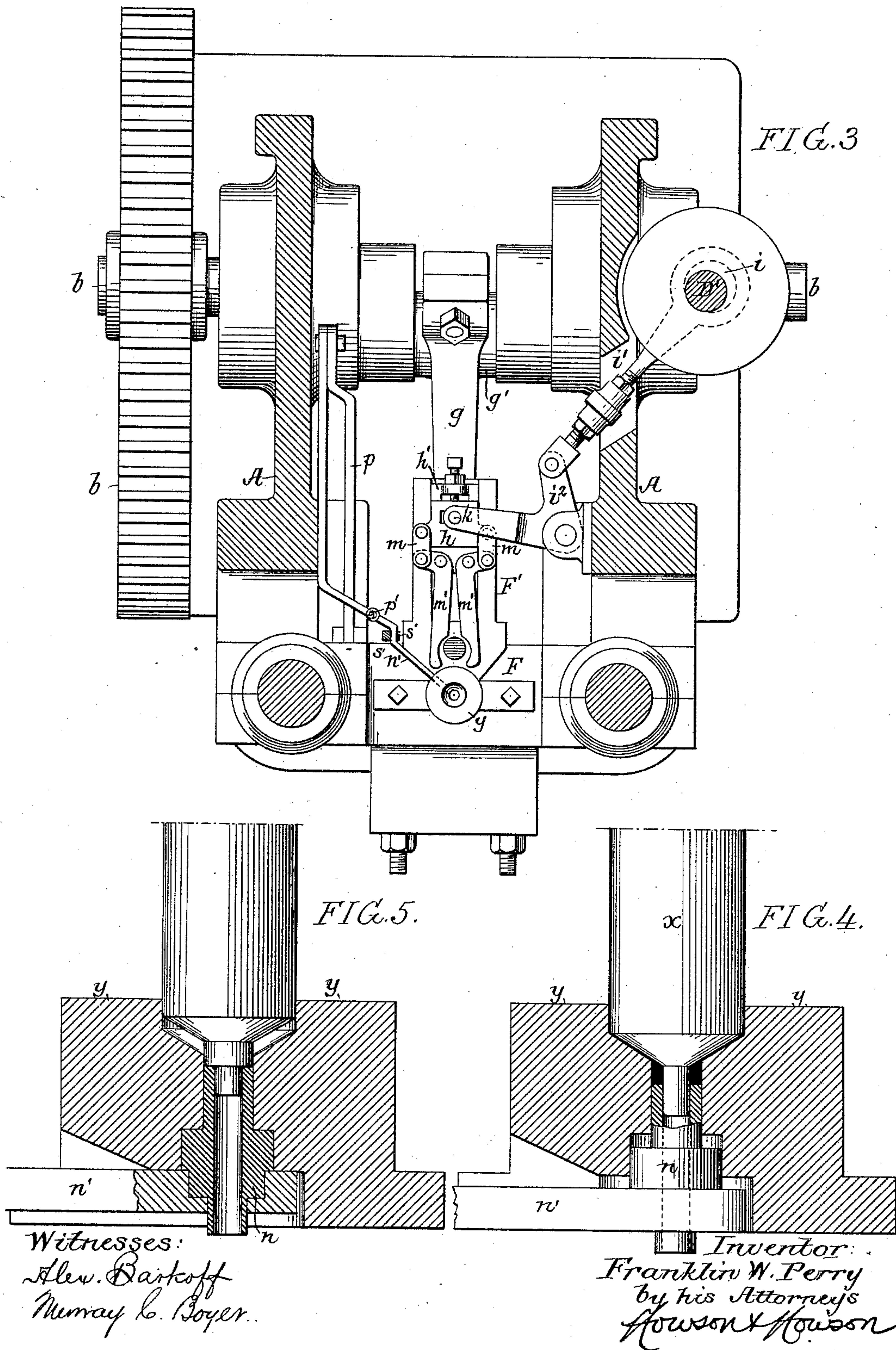
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F. W. PERRY.
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4 Sheets—Sheet 4.

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FIG. 6.

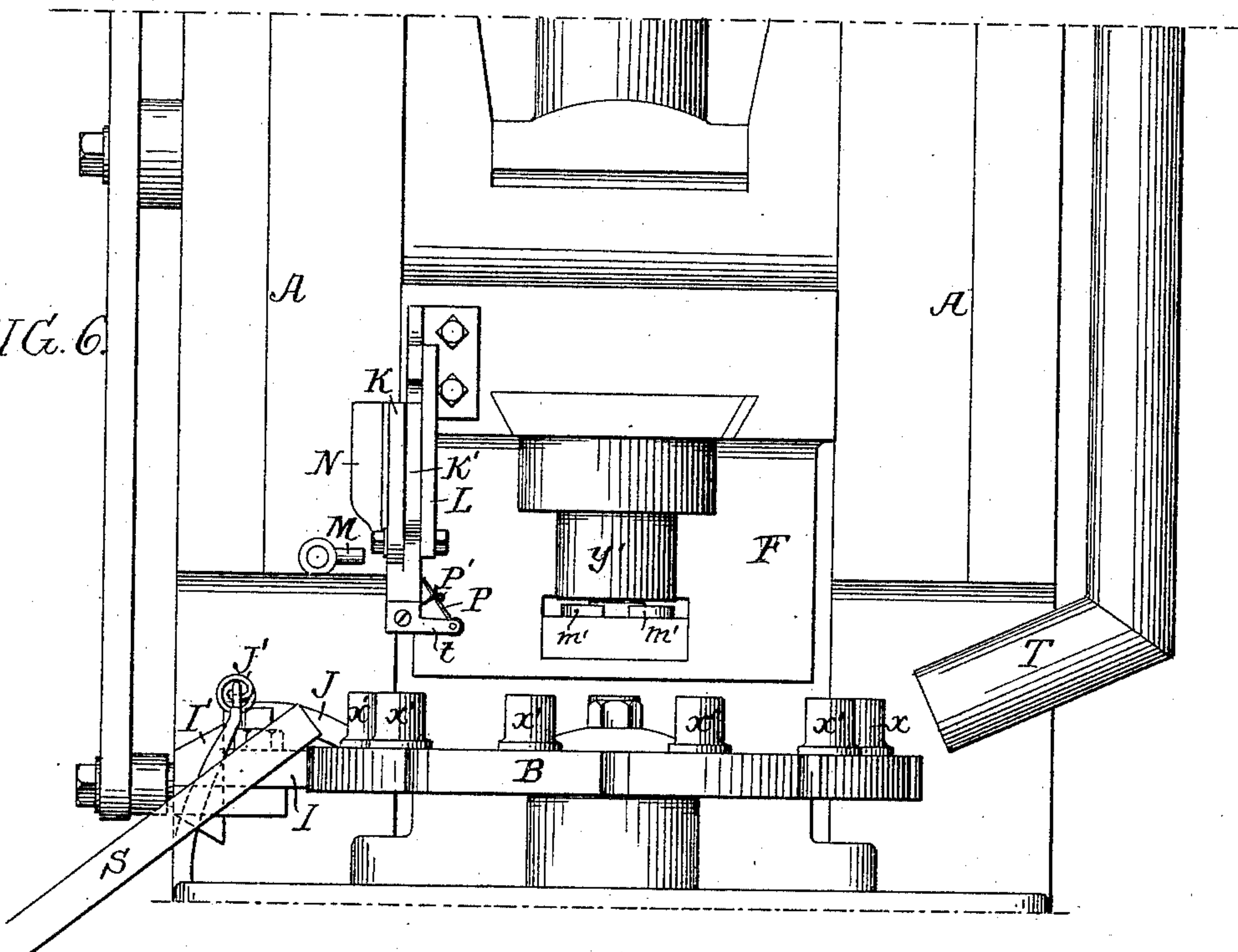
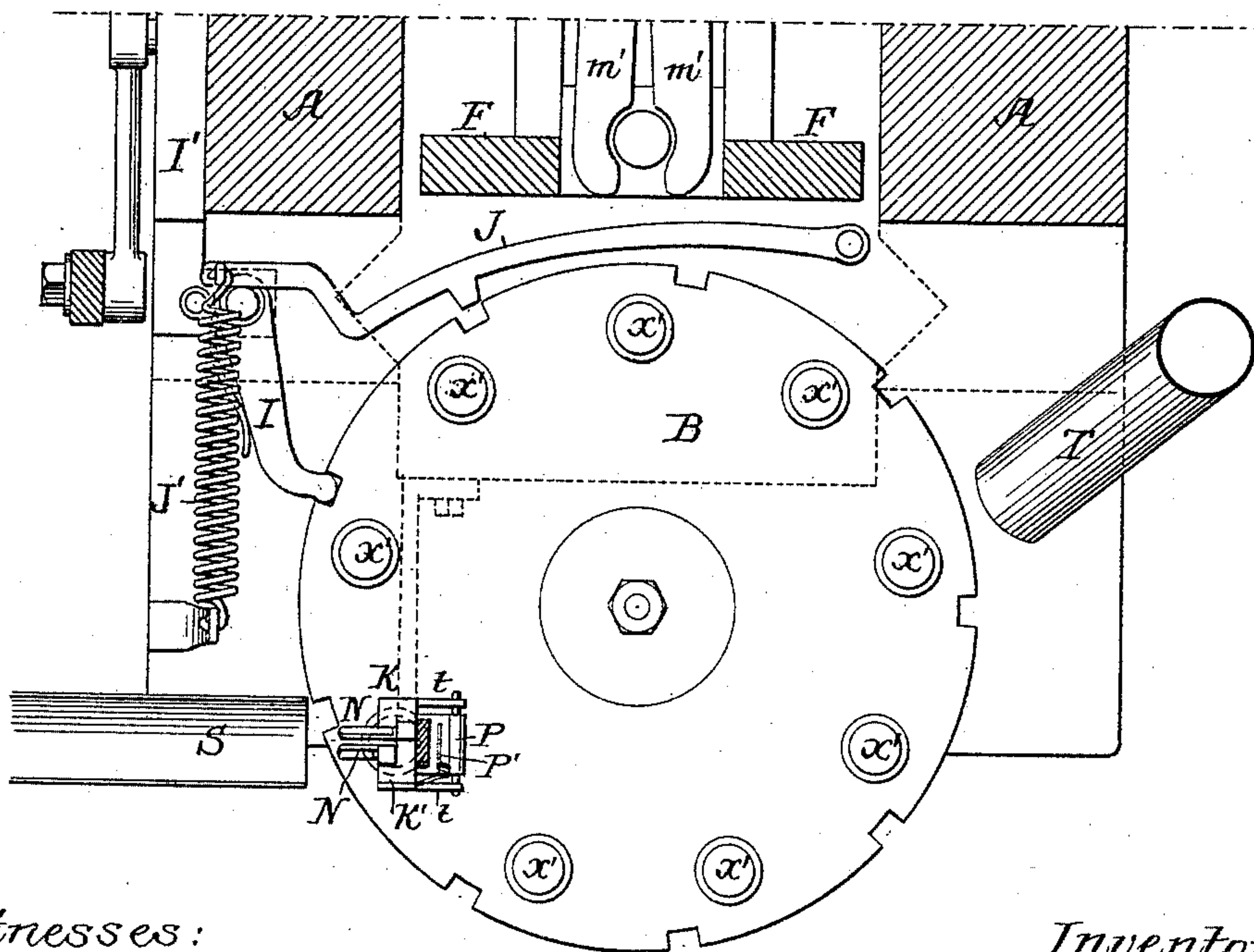


FIG. 7.



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UNITED STATES PATENT OFFICE.

FRANKLIN W. PERRY, OF PHILADELPHIA, PENNSYLVANIA.

CAPSULE-PRESS.

SPECIFICATION forming part of Letters Patent No. 442,910, dated December 16, 1890.

Application filed October 15, 1890. Serial No. 368,172. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN W. PERRY, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented certain
5 Improvements in Capsule-Presses, of which the following is a specification.

The object of my invention is to construct a machine for the rapid and accurate manufacture of sheet-metal caps or tubes from disks
10 of metal, and this object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of a machine constructed in accordance with my invention.
15 Fig. 2 is a longitudinal section of the same. Fig. 3 is a view partly in elevation and partly in sectional plan. Figs. 4 and 5 are sectional views of the dies of the machine. Figs. 6 and 7 are respectively a front view and a sectional
20 plan view of another form of the machine, and Figs. 8 and 9 are detached views of parts of said machine.

In Fig. 1, A represents the fixed frame-work of the machine, to suitable bearings in which
25 is adapted the driving-shaft a , which has at one end the belt wheel or pulley a' and at the opposite end the pinion a^2 , the latter meshing with a spur-wheel b' on a shaft b , extending transversely across the machine.

30 The upper dies x of the machine are carried by a disk B, which is secured to the lower end of a shaft B' , adapted to a vertical bearing in the head of the machine, this shaft having at the upper end a ratchet-wheel B^2 ,
35 with which engages a pawl d upon an arm d' , hung to the upper end of the shaft B' and acted upon by a link d^2 , connected to a crank-pin on a disk D at the upper end of a vertical shaft D' , which is driven by bevel-wheels
40 e e' from the transverse shaft b . By this means intermittent movements of partial rotation are imparted to the die-carrying disk B, so as to bring the dies of the same in succession above the counter-die y , which is
45 mounted upon a vertically-guided frame or block F, the vertical reciprocating movements of the latter being effected by toggle-arms f f' , the latter being mounted in a base-block f^2 on the frame A and having an arm f^3 , con-
50 nected by a rod g to a crank g' on the transverse shaft b .

Extending rearwardly from the block or

arm F is an arm F' , upon which is mounted a tube H, guided in an opening in the head A of the machine, this tube carrying the disks
55 or blanks from which the caps or tubes are to be formed by the machine.

Suitably guided on the frame F' is a slide h , to which a reciprocating motion is imparted from an eccentric i on the vertical shaft D' ,
60 this eccentric acting through the medium of the eccentric-rod i' and bell-crank lever i^2 , the latter being forked and carrying a rod k , Fig. 2, which rod passes through a slot in the slide h , so that the vertical movement of the
65 frame F will not interfere with the desired reciprocating movement of the slide thereon. The slide is connected by links m to bell-crank levers m' , hung to a second slide h' on the frame F, the front ends of said levers m' be-
70 ing recessed, so as to form jaws for engaging with the lowermost disk in the tube or hopper H and carrying said disk forward, so as to deposit it in the lower die y prior to the as-
75 cent of the same and the formation of the cap or tube by the conjoint action of the two dies y and x .

After the cap or tube has been formed in the dies it becomes necessary to force it from the lower die or prevent it from sticking
80 therein as the die descends, and for this purpose I employ a plunger n , which forms in effect a movable bottom for the lower die, said plunger being carried by an arm n' , which
85 is hung to a rearwardly-projecting arm p and is acted upon by a lifting-spring p' .

Hung to the frame of the machine is an arm s , which has a shoulder or projection s' and a beveled portion s^2 , and is acted upon by a spring s^3 , tending to draw it inward. When
90 the lower die is elevated in the act of pressing, the plunger n is forced downward, as shown in Fig. 4, and when in this position the arm n' engages with the shoulder s' of the arm s , as shown in Fig. 1, so that when
95 the die y descends the plunger n cannot descend with it, but retains its position and pushes the cap or tube upward from the die, so as to prevent sticking, as shown in Fig. 5. By this time, however, a projection s^4 on the
100 frame F strikes the inclined portion s^2 of the arm s and pushes the same laterally, so as to carry the shoulder s' from beneath the arm n' , thus freeing the latter and permitting it

to descend with the die. On the rise of the lower die the arm n' strikes the beveled under side of the projection s' and moves the arm s laterally until the lower die reaches its highest position, the spring s'' then acting upon the arm s so as to pull the projection s' beneath the arm n' , in order to retain the same when the lower die again descends. On the descent of the lower die the tube or cap remains upon the upper die and can be removed therefrom in any convenient way when said upper die has been carried around to the desired point of discharge.

In Figs. 6 to 9 I have illustrated another form of my improved press, in which the position of the main parts is reversed, the rotating die-carrier being beneath and the reciprocating counter-die carrier above. In this case the rotating die-carrier B' is operated by a pawl I , carried by a reciprocating slide I' , and is locked between its movements by means of a detent pawl or arm J and spring J' , the pawl being pushed out of locking position by the slide I' on the backward movement of the latter, in a manner fully set forth in my application, Serial No. 365,012, filed September 15, 1890.

The machine shown in Figs. 6 to 9 has a special form of stripper or device for removing the caps from the dies x' of the die-carrier B' . This stripper consists of a pair of levers $K K'$, hung to a suitable projection L upon the slide carrying the upper die y' , the lower arms of these levers having jaws k for engaging with the lower edge of the cap on the die x' , as shown in Fig. 8, the jaws being held in engagement with the cap during the rise of the stripper by reason of a fixed pin M on the frame of the machine, which engages with plates N , carried by the upper or long arms of the levers $K K'$. Brackets t project from the lower arms of the levers $K K'$, and to openings in these brackets is adapted the pivot-pin or spindle of an ejector-plate P , which is acted upon by a spring P' and bears upon the cap during the rise of the stripper-levers. As soon, therefore, as the cap has been lifted from the die x' the ejector-plate throws said cap laterally into the discharge-spout S , by which it is conveyed into any adjacent receptacle. The forcible pressing or flowing of the metal over the die x' by the action of the die y' develops a high degree of heat in the cap, and in order to properly cool the cap before it is removed from the die x' a blast of air from a pipe T plays upon the cap as it is being carried around from the point where it is formed by the action of the dies $x' y'$ to the point where it is stripped from said die x' and thrown into the discharge-spout.

Having thus described my invention, I

claim and desire to secure by Letters Patent—

1. The combination of the intermittently-rotating die-carrying disk, the counter-die, means for reciprocating the latter, and blank-feeding mechanism mounted on said counter-die, substantially as specified.

2. The combination of the intermittently-rotating die-holder, the reciprocating counter-die having a movable plunger, an arm carrying said plunger, and a catch-arm for engaging with said plunger-carrying arm as the counter-die is retracted, substantially as specified.

3. The combination of the intermittently-rotating die-holder, the reciprocating counter-die, the movable plunger therein, the arm carrying said plunger, a catch-arm for engaging with said plunger-carrying arm as the die is retracted, and a tripper or releasing device moving with the counter-die and acting upon the catch-arm to move the same out of engagement with the plunger-carrying arm when the counter-die has been partially retracted, substantially as specified.

4. The combination of the intermittently-rotating die-holder, the reciprocating counter-die, and a stripper moving with said counter-die and consisting of a pair of levers having jaws for engaging with the cap and removing the same as the counter-die is retracted, substantially as specified.

5. The combination of the intermittently-rotating die-holder, the reciprocating counter-die, a stripper moving with the counter-die and consisting of a pair of levers having jaws for engaging with the cap, and plates acted on by a pin for maintaining said jaws in engagement with the cap, substantially as specified.

6. The combination of the intermittently-rotating die-holder, the reciprocating counter-die, a stripper moving with said counter-die and consisting of a pair of levers having jaws for engaging with a cap, and a pivoted spring-plate for discharging the cap when the same has been lifted from the die, substantially as specified.

7. The combination, in a capsule-press, of the intermittently-rotating die-holder, the reciprocating counter-die, and a blast-pipe, whereby a current of air is directed upon the caps after they leave the pressing or forming dies and before they reach the point of discharge, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANKLIN W. PERRY.

Witnesses:

JNO. E. PARKER,

EUGENE ELTERICH.