

No. 665,649.

Patented Jan. 8, 1901.

J. F. WINCHELL.
FORGE.

(Application filed Feb. 12, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

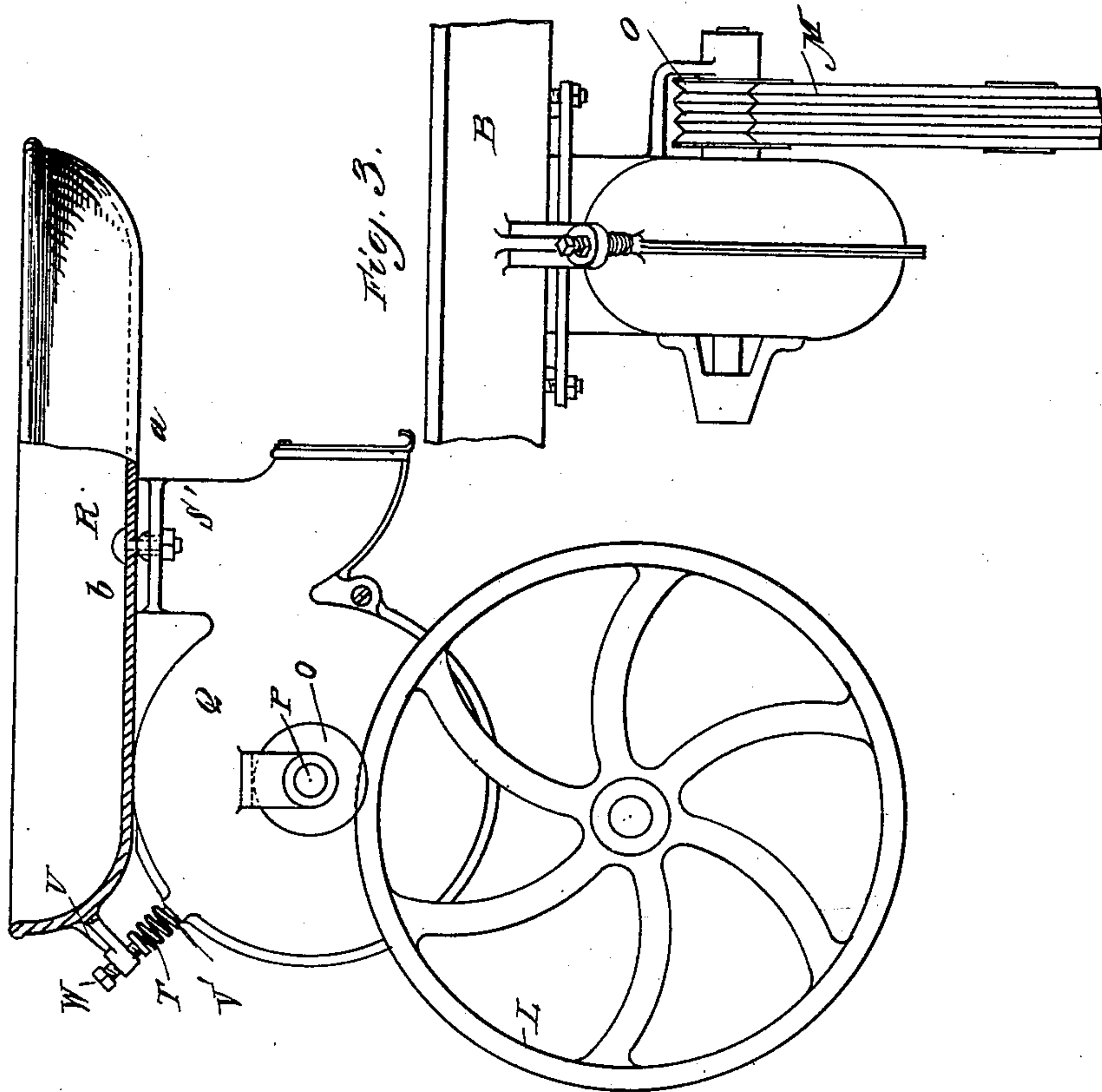
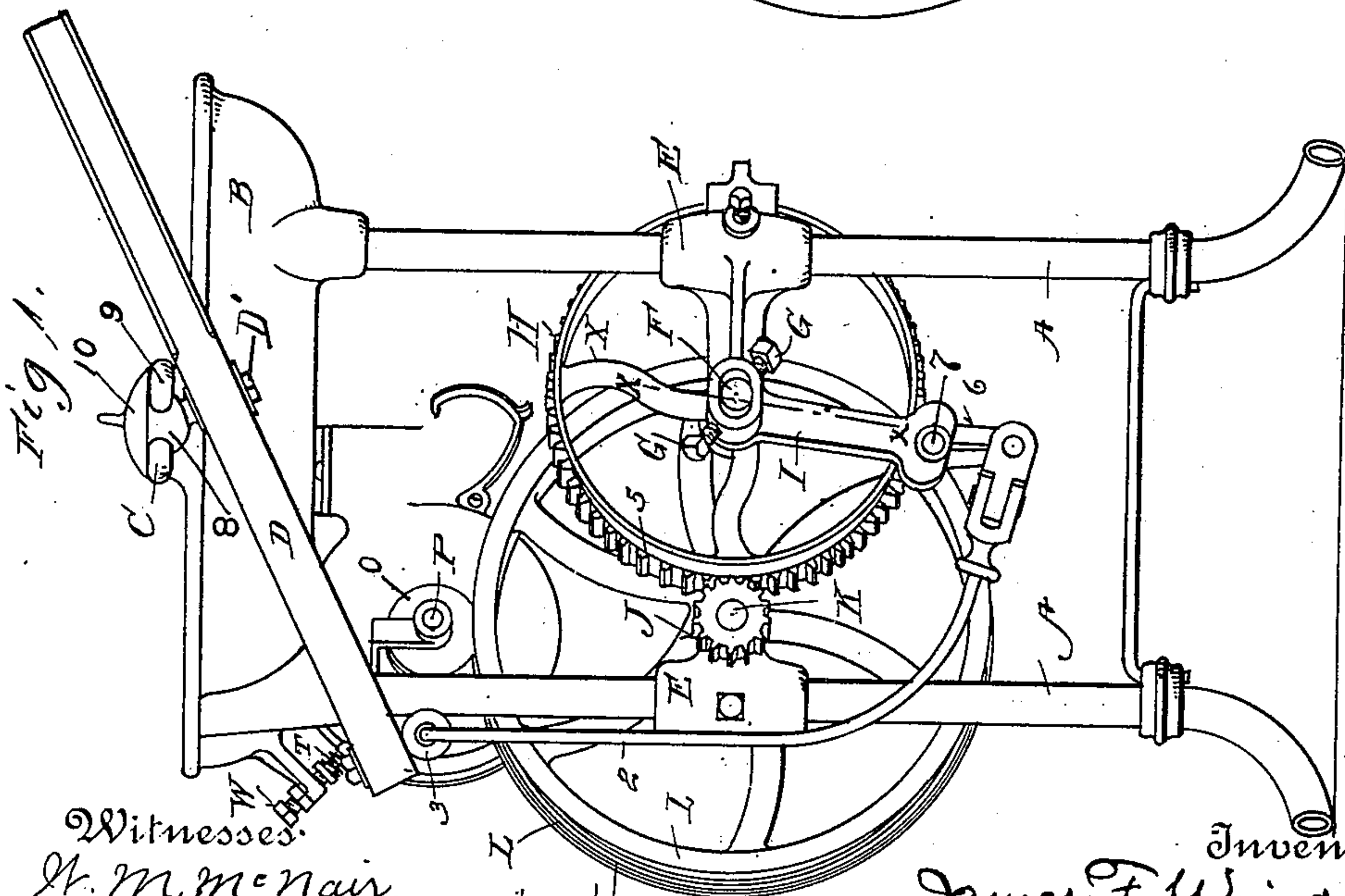


Fig. 3.



Witnesses:
St. M. McNaair.
Wm. O'Laughlin

Inventor
James F. Winchell,
By his Attorney
H. A. Goulmin.

No. 665,649.

Patented Jan. 8, 1901.

J. F. WINCHELL.
FORGE.

(Application filed Feb. 12, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 4.

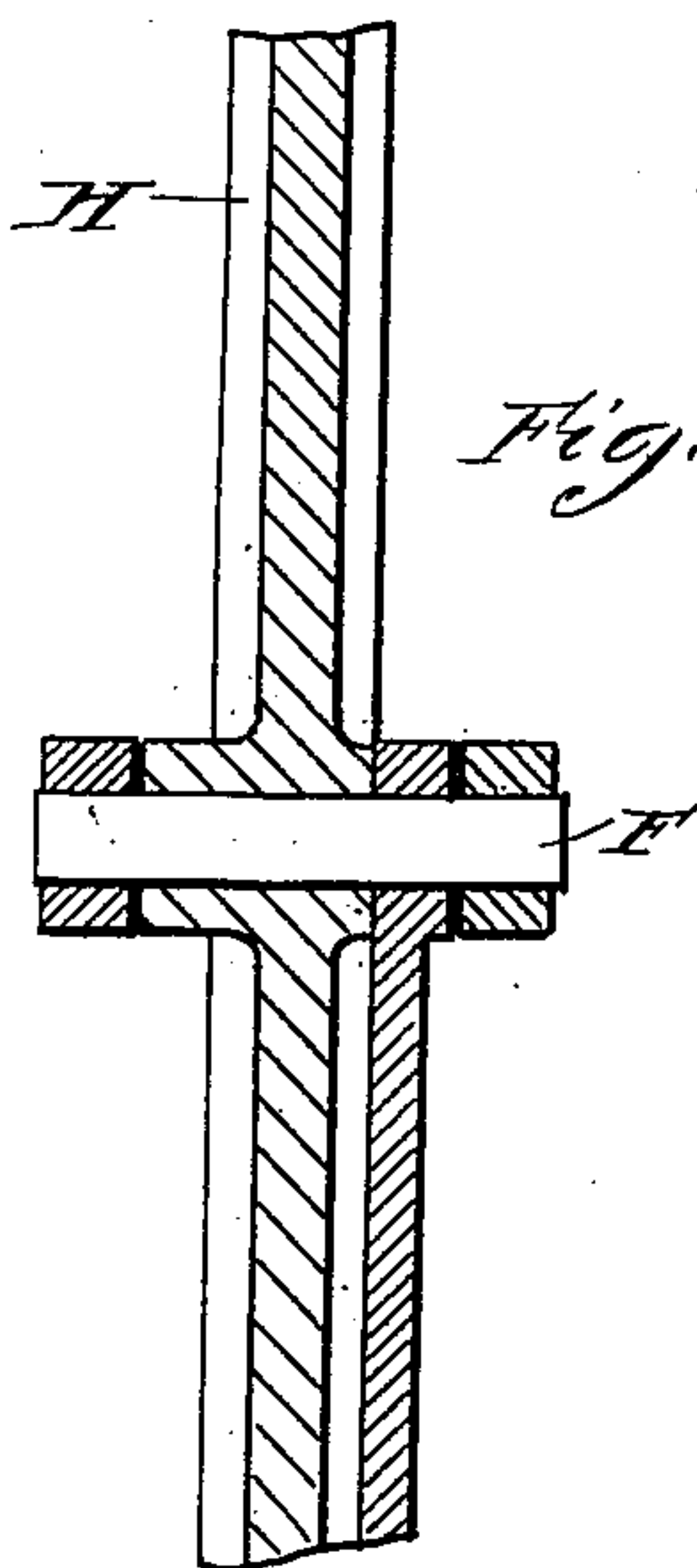
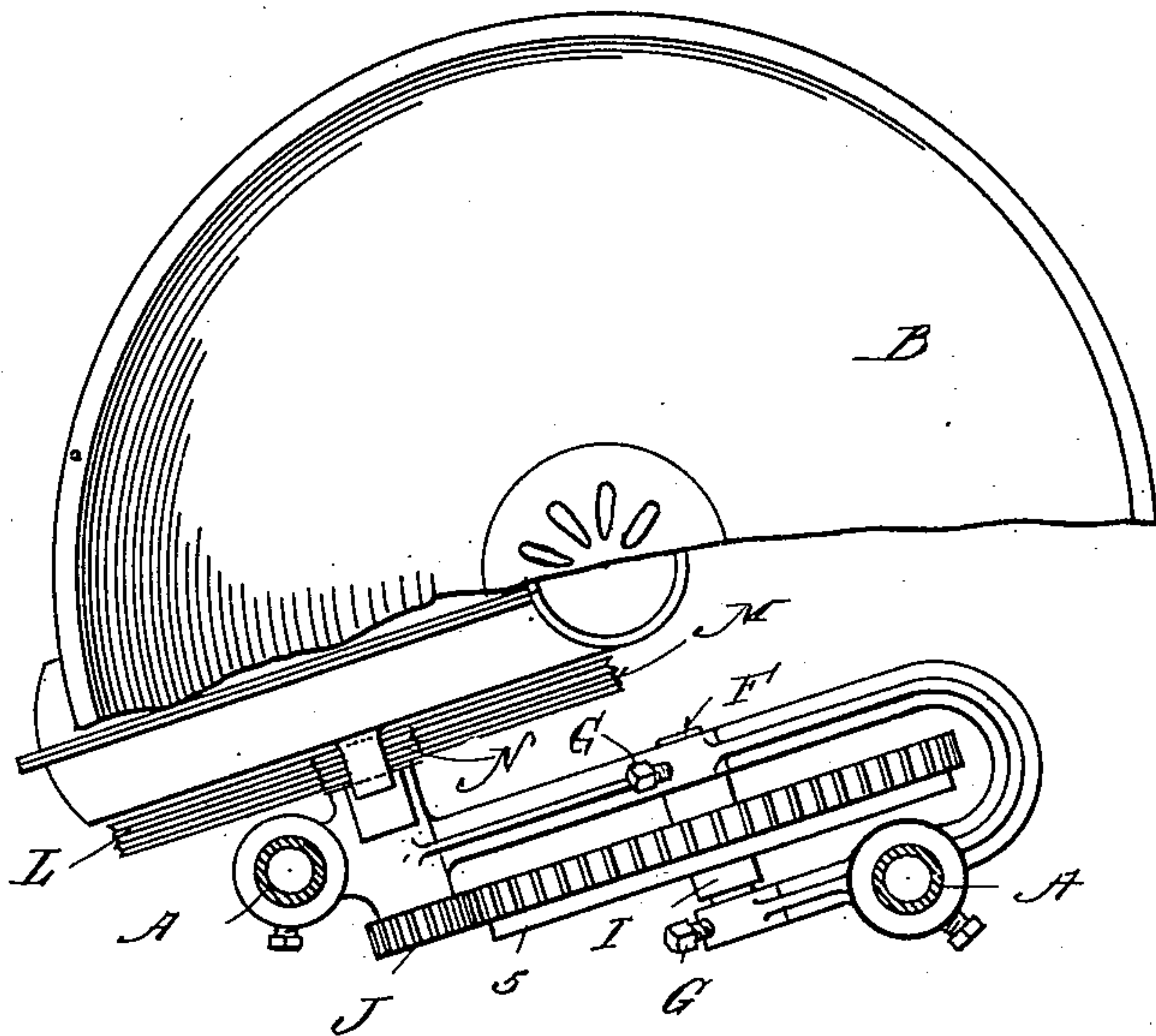


Fig. 6.

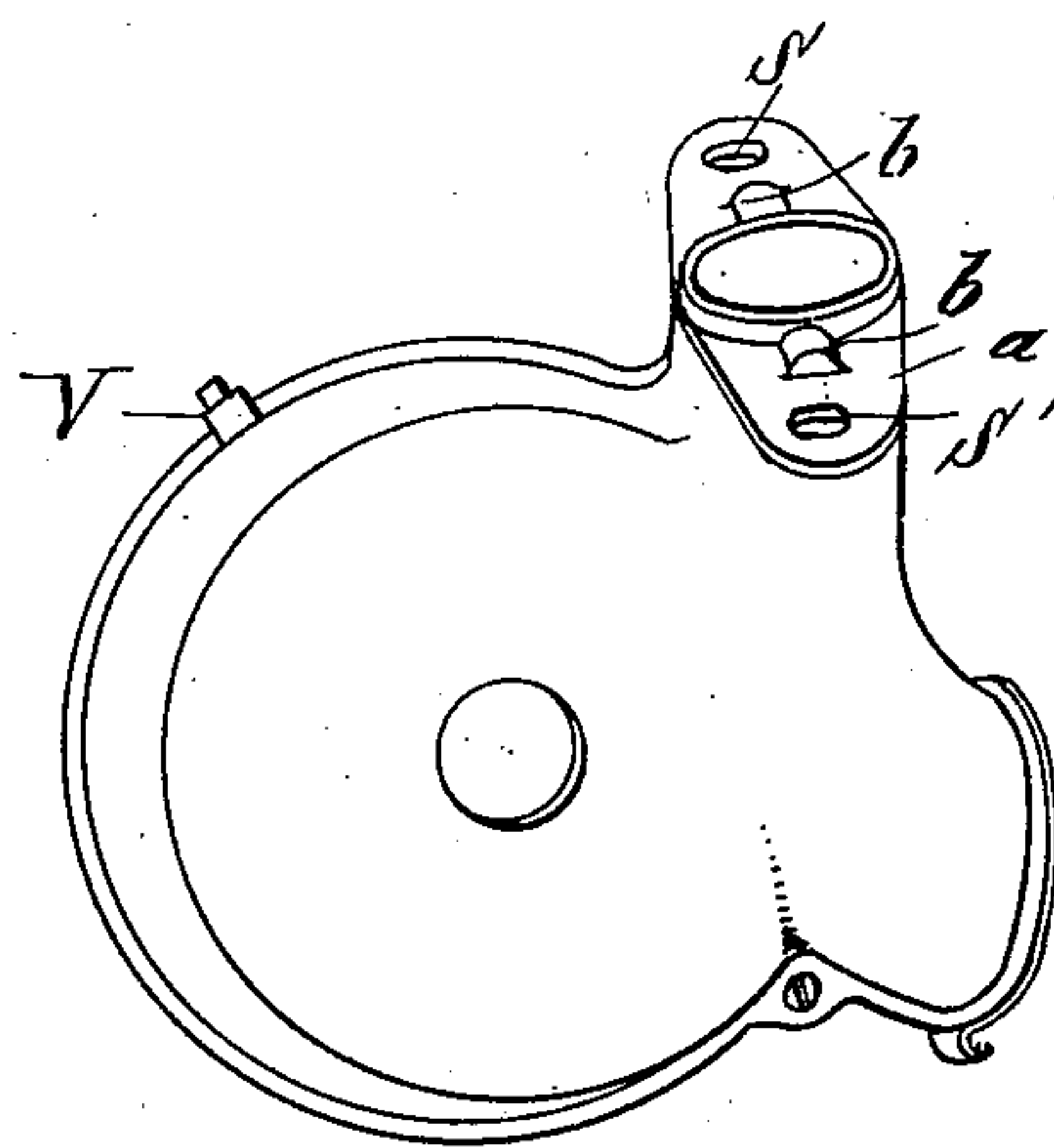


Fig. 5.

Witnesses
J. D. Dawley
W. M. McMain

James F. Winchell Inventor
By his Attorney *H. A. Faulstich*

UNITED STATES PATENT OFFICE.

JAMES F. WINCHELL, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE FOOS
MANUFACTURING COMPANY, OF SAME PLACE.

FORGE.

SPECIFICATION forming part of Letters Patent No. 665,649, dated January 8, 1901.

Application filed February 12, 1900. Serial No. 4,840. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. WINCHELL, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Forges, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in portable forges.

The general object of this invention is to provide a construction whereby the fly or drive wheel will be connected directly with a fan-driving shaft without the intervention of belts or chains.

My invention also relates to details of construction and arrangement hereinafter appearing and particularly pointed out in the claims.

In the accompanying drawings, on which like reference characters indicate corresponding parts, Figure 1 is a front elevation of a forge with my improvements applied thereto; Fig. 2, a detail enlarged side view of a fly or drive wheel, a fan connected therewith, and a cross-sectional view of a portion of the bowl; Fig. 3, an edge view of what is shown in Fig. 2; Fig. 4, a plan view with a portion of the bowl removed; Fig. 5, a detail perspective view of the fan-casing, and Fig. 6 a vertical sectional view on the line *xx* of Fig. 1.

This invention is particularly designed for doing away with all belts or chains whereby the ordinary fan employed in this class of forges is driven, and to that end I have pivoted the fan-casing in such a manner that its fan-shaft-driven wheel may be constantly pressed into engagement with a driving-pulley or fly-wheel. In actual practice it is found very difficult and entirely too expensive to form the main driving-wheel perfectly true, and it is for this reason that I have found it desirable to pivot the fan-casing, so that there will always be sufficient frictional contact between the driven gear on the fan-shaft and the driving-wheel.

The letter A represents suitable legs or standards, upon which is mounted the usual bowl B for receiving the fire. This bowl carries a projecting support C for the operating-

lever D, such operating-lever being pivotally mounted in such support in any desirable manner, such as by a bolt D', having a head 8 at its upper end and which rests upon the forks 9, formed in the outer end of the support C. The head of such bolt is held in position in the fork by means of a cap 10, which is held down upon the forks and over the rounded head of the bolt in any suitable manner. An adjustable bearing E is mounted on the two front legs A and has adjustably mounted therein a shaft F, held in place by means of set-screws G. Upon such shaft is mounted a driving-gear H and a swinging grip-arm I, the former engaging with a driven pinion J, carried at the outer end of a shaft K. The shaft K also carries a fly or driving wheel L, which has its outer periphery annularly serrated, as shown at M. A matching serrated driven wheel N is rigidly mounted upon a fan-shaft P and meshes with said driving-wheel. These various serrations permit of a greater frictional contact between the driving-wheels and driven wheels. In practice the driving-wheel cannot be made perfectly round without considerable machine-work, and the variation is such as to preclude the use of a stationary bearing for both the driving-wheel and driven wheel, for the reason that at some points on the periphery of the two wheels there might be undue friction, while at other points there might not be enough friction to even turn the fan properly. This difficulty I have overcome by reason of a slightly-yielding or pivotal bearing for the fan-casing Q, such casing being connected with the bowl by means of a bolt R, which passes through holes S' in the flange *a*, with interposed beads *b* forming bearings between the bowl and flange. It will be observed from Figs. 1 and 2 particularly that the bolt-holes through the flange *a* are slightly larger than the bolts. This permits of a slight rocking or vibratory movement of the fan-casing, which will permit the driven wheel to constantly ride upon the outer periphery of the driving-wheel L, even though such driving-wheel may be more or less out of a true circle. In order, however, to produce sufficient contact between the driving and driven wheels, I provide a spring

T, which is interposed between a bracket U, cast or otherwise secured to the bowl, and the fan-casing, such spring fitting over a stud V on the fan-casing and over a screw W, carried by the bracket U. Thus the driven wheel N is constantly forced downward upon the driving-wheel L and also yields to accommodate itself to the driving-wheel when out of a true circle.

10 In order that the forge may be operated, the operator grasps the outer end of the lever D and oscillates it, which will cause the pitman 2, attached to such lever, as shown at 3, to operate upon the swinging clutch-arm I to
15 cause the grip proper, 6, to engage with a plain portion 5 of the periphery of the driving-gear H, as shown in Figs. 1 and 4, it being understood that the outer portion 6 of the swinging grip is pivoted at 7, so that it will readily im-
20 pinge upon such plain portion in order that the gear H may be partially rotated, and since such gear is in engagement with the pinion J, fixedly mounted on the shaft K, the driving-wheel L will be rotated at a much higher
25 speed than the driving-gear H, inasmuch as such gear is considerably larger than the driven pinion J. As the driving-wheel L rotates, it will drive the fan-wheel O and through it the fan.

30 I lay no claim whatever in this application to the swinging grip or clutch for operating the driving-gear H nor to the general construction of the fan structure, one of the principal features of my invention being simply
35 the corrugated outer periphery of the driving-wheel meshing with a corrugated driven wheel, which in turn drives the fan-shaft and fan, such fan-shaft being yieldable to accommodate itself to any inequalities in the outer
40 periphery of the driving-wheel.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

45 1. In a portable forge, the combination with a fan-casing carrying a fan-shaft, of a driven wheel and a fan rigidly mounted on said fan-shaft, means for pivotally supporting said fan-casing, a driving-wheel frictionally engaging with said driven wheel, and means for

driving said driving-wheel, all substantially as shown and described. 50

2. In a portable forge, the combination with a bowl having a casing pivotally connected therewith, a fan-shaft carried by said casing having a driven wheel and a fan mounted thereon, a driving-wheel carried by said forge and adapted to frictionally engage with said driven wheel, means for normally holding said driving and driven wheels in frictional contact with each other, and means for driving said driving-wheel, all substantially as shown and described. 55 60

3. In a portable forge, the combination with a bowl, of a fan-casing having a projecting flange, one or more beads constituting a bearing against the under side of said bowl, holes in line with said beads through said flange, bolts adapted to extend through said bowl and holes in said flange, the holes being larger than the bolts, whereby the fan-casing is held to the bowl and yet is permitted to have more or less rocking or vibratory movement, substantially as shown and described. 65 70

4. In a portable forge, the combination with a bowl, of a fan-casing having a flange projecting therefrom with one or more bolt-holes therein, bolts adapted to extend through said bowl and holes in said flange, said bolts being smaller than the holes in the flange, a lug projecting from said fan-casing, a bracket projecting from said bowl carrying a screw, a spring interposed between said bracket and casing and fitting over said lug and said screw and adapted to press said fan-casing downward, a fan-casing shaft carried by said fan-casing and having a driven wheel and a fan fixedly mounted thereon, and a driving-wheel adapted to contact with said driven wheel to hold said casing in its normal position and to drive said driven wheel, and means for rotating said driving-wheel, all substantially as shown and described. 75 80 85 90

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. WINCHELL.

Witnesses:

B. B. ESTERLINE,
W. M. MCNAIR.