

*E. B. Bigelow,*

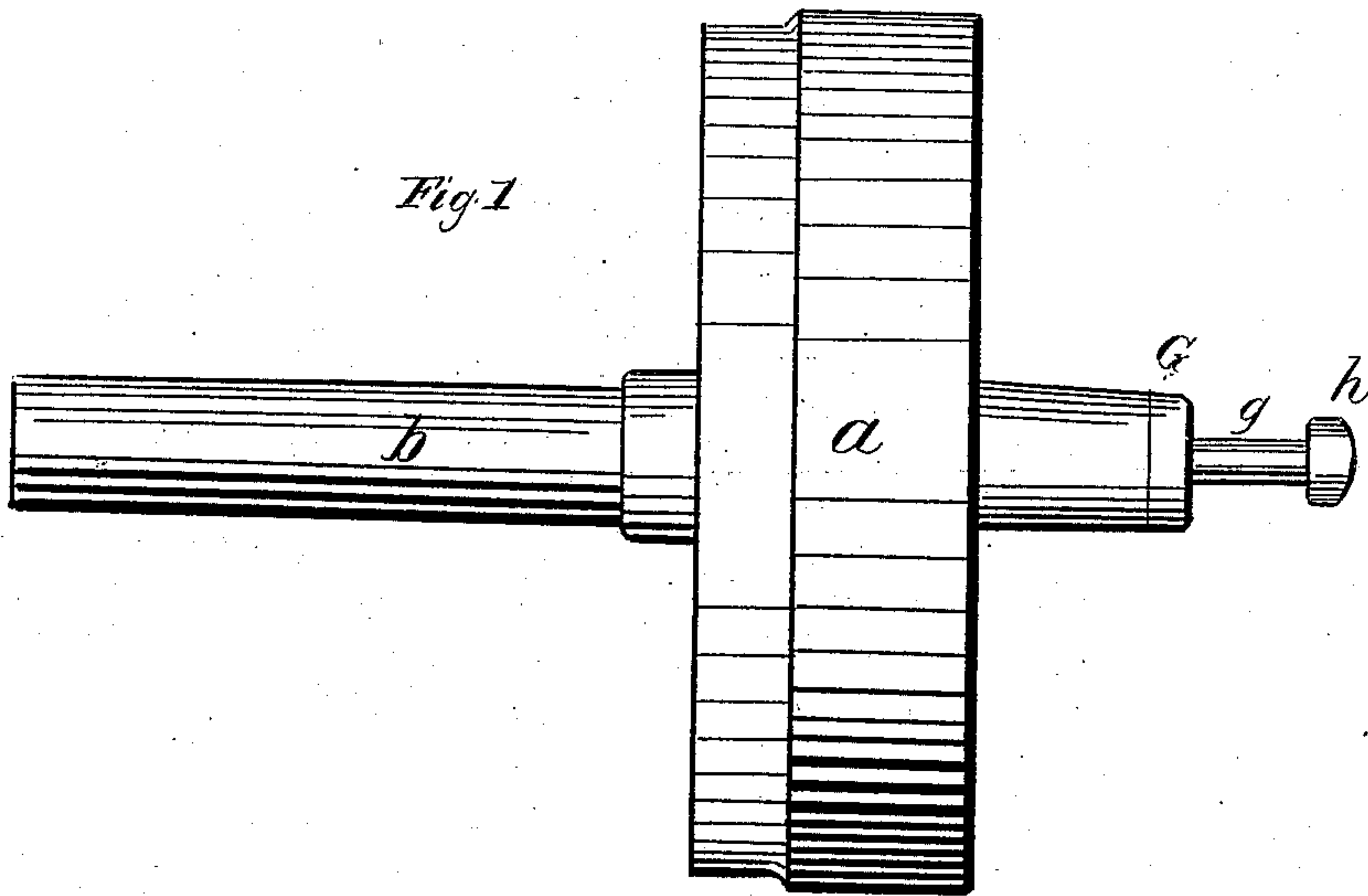
*2, Streets, Street, 1.*

*Friction Clutch.*

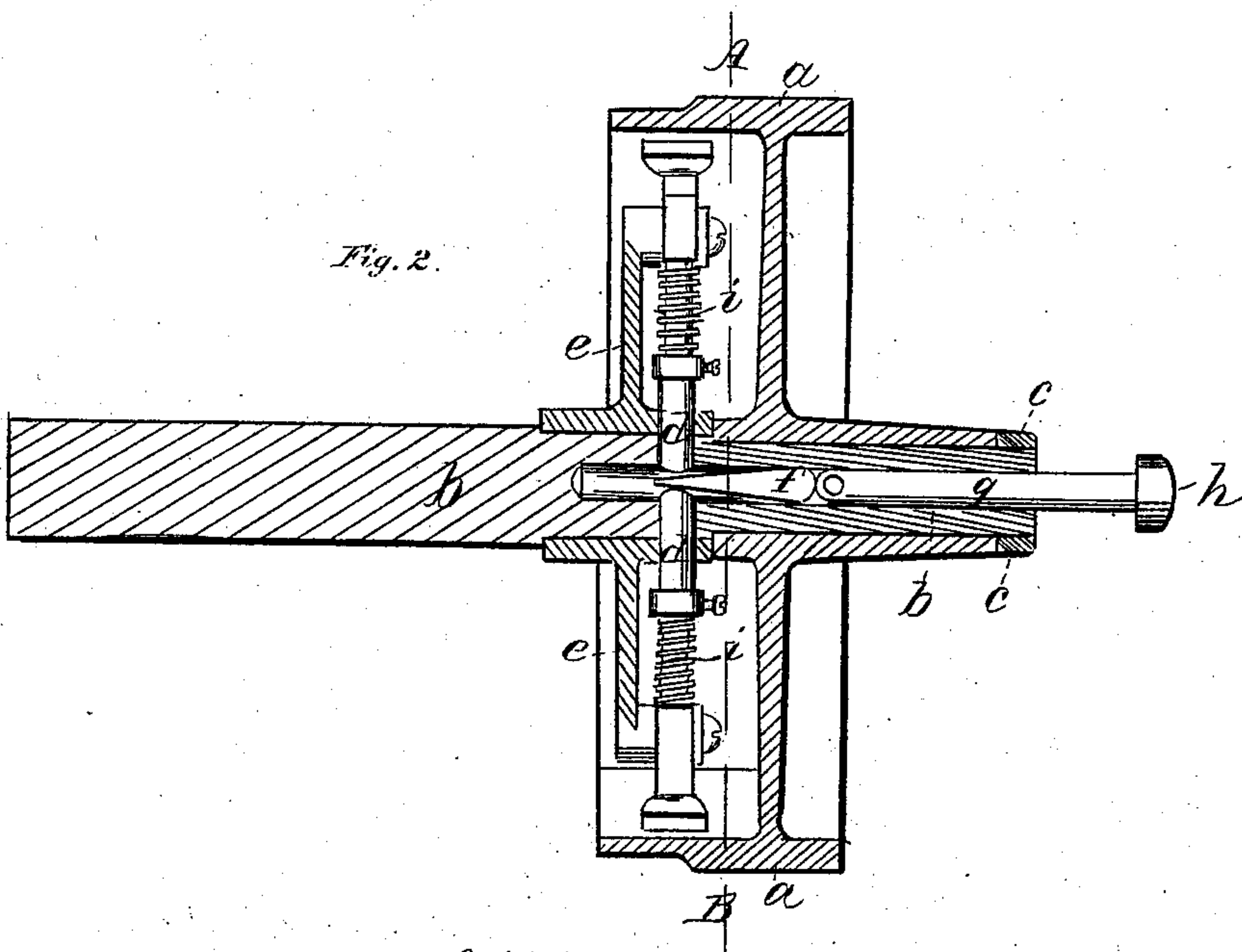
*No. 93,798.*

*Patented Aug. 17, 1869.*

*Fig. 1*



*Fig. 2.*



*Witnesses.*

*Nancy E. Cheever.*

*Herbert J. Whitman*

*E. B. Bigelow*

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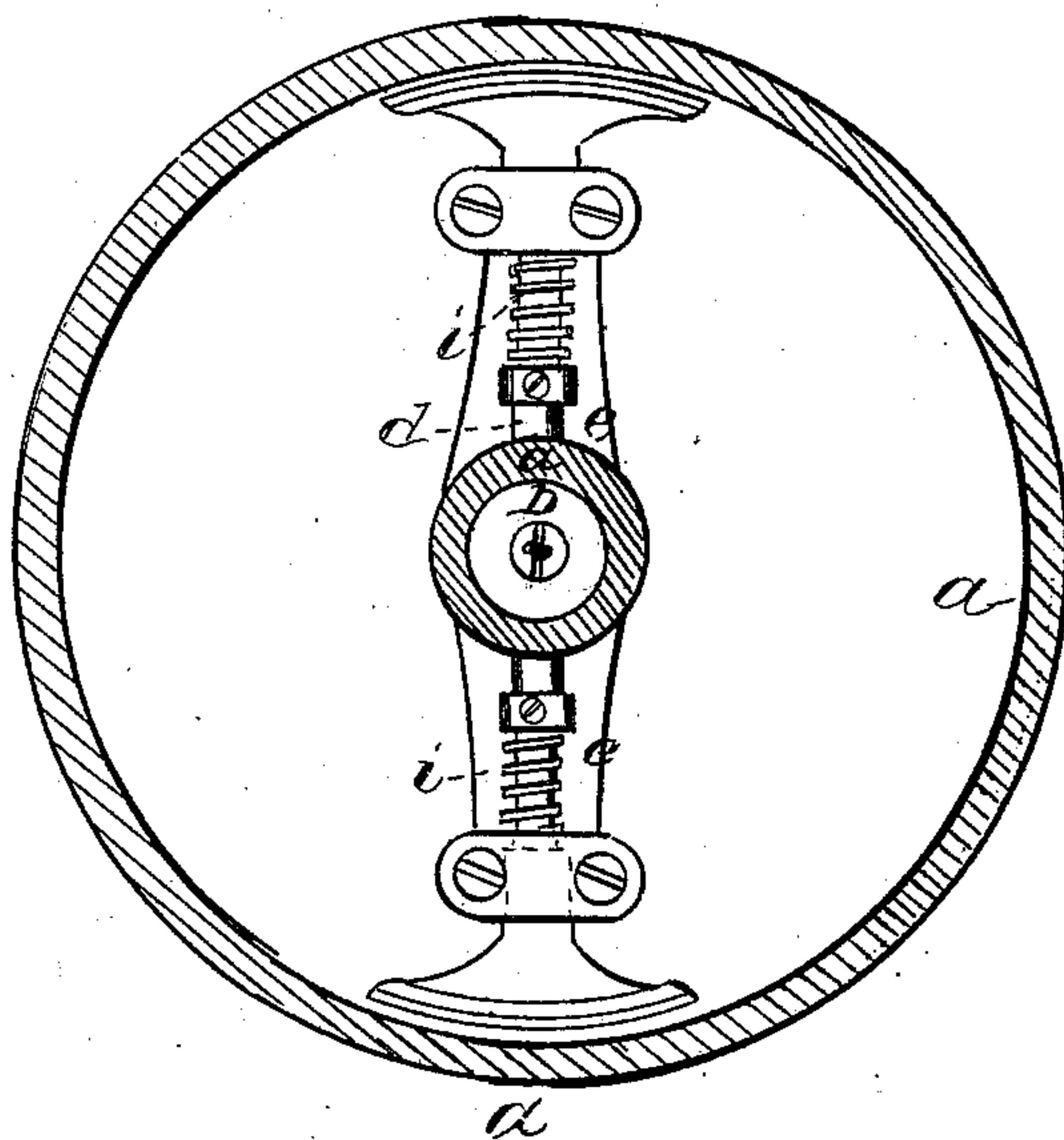
*2. Sheets. Sheet. 2.*

*Friction Clutch.*

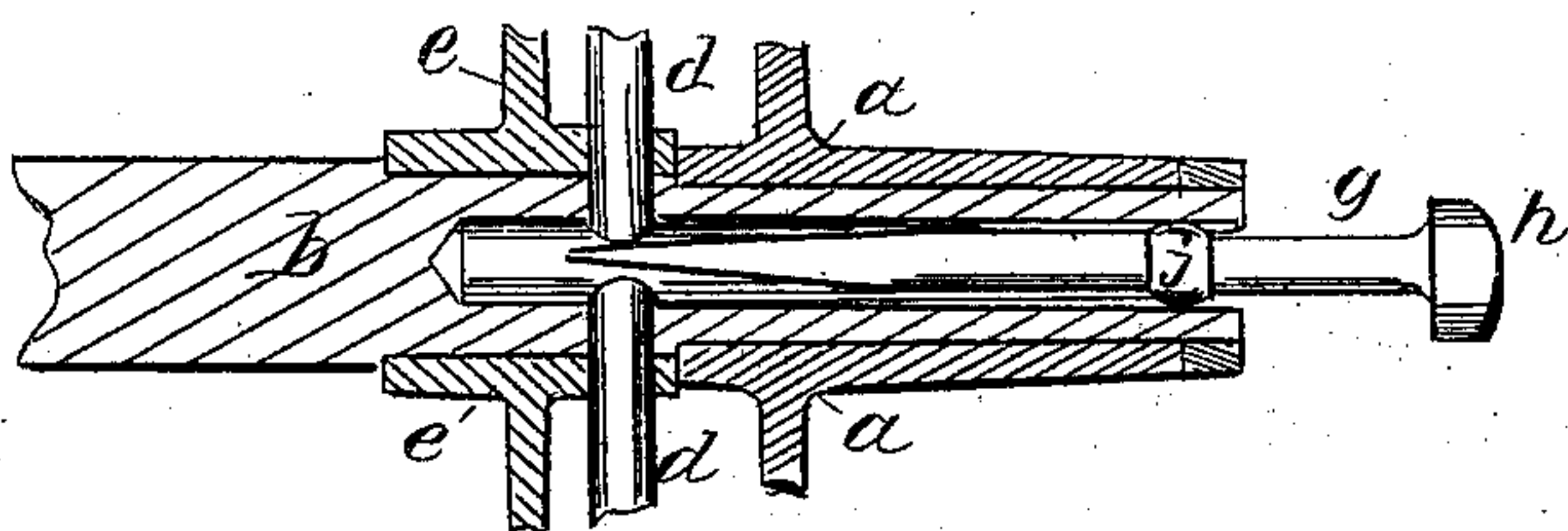
*No. 93798.*

*Patented Aug 17. 1869.*

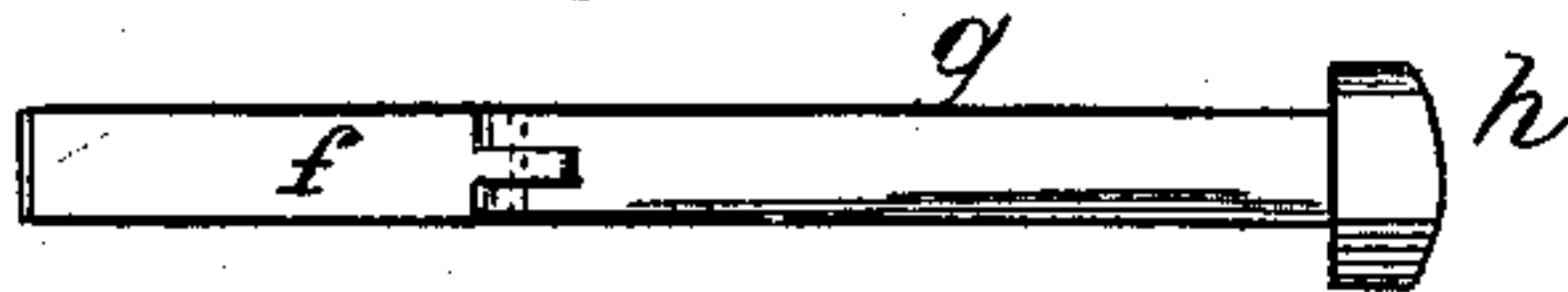
*Fig. 3.*



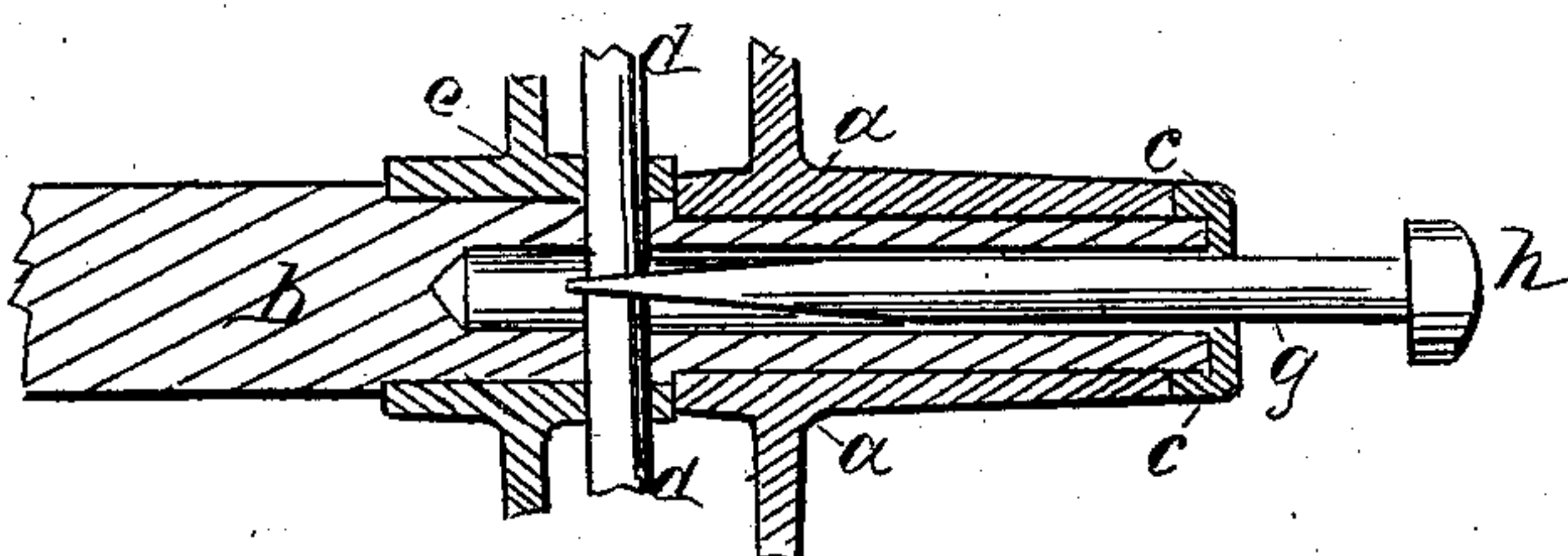
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Witnesses*

*Nancy E. Meeks*

*Herbert J. Whitman*

*E. B. Bigelow*



# United States Patent Office.

ERASTUS B. BIGELOW, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 93,798, dated August 17, 1869.

## IMPROVEMENT IN FRICTION-CLUTCHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, ERASTUS B. BIGELOW, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in the Friction-Clutch; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a side view of the shaft and pulley to which the clutch-arrangement is applied;

Figure 2, a longitudinal section thereof; and

Figure 3, a transverse section, taken on the red line A B, looking toward the left.

My invention relates to a mode of pressing the friction-surfaces of the clutch against the rim of the driving-pulley, to engage it with the driving-shaft, and of releasing the same.

The driving-pulley *a* is fitted loosely to the driving-shaft *b*, and is kept in position thereon by a collar, *c*.

Two lever-arms, *d*, are carried by the driving-shaft, one on either side thereof, and are capable of being moved toward and from its centre.

They are guided and supported in part by arms *e*, affixed to the driving-shaft, and in part by holes in the driving-shaft, in which their inner ends ply, the part which plies in the arms *e* being square, to prevent them from turning therein.

Their outer ends are covered with leather or copper, as is usual, and are curved, to conform to the inner surface of the rim of the driving-pulley on which they act, while their inner ends rest on a wedge-formed bar, *f*, by which they are actuated.

The wedge-formed bar *f* is jointed to a sliding rod, *g*, (as shown in figs. 2 and 5,) which slides in a central hole in the driving-shaft, and has a head, *h*, on its outer end, on which the shipper acts.

When the sliding rod *g* is pushed inward, the wedge-formed bar *f* presses the friction-surfaces of the lever-arms *d* against the rim of the driving-pulley, and engages it with the driving-shaft, and when it is withdrawn it allows the coiled springs *i* to draw the friction-surfaces away from the rim of the driving-pulley, and disengage it from the driving-shaft.

The object of jointing the wedge-formed bar *f* to

the sliding rod *g* is to avoid the necessity of making and maintaining the lever-arms *d* of exactly equal lengths, for it will be obvious that if one of them was made longer than the other, or if one by unequal wear should become shorter than the other, it would press the sliding rod *g* against the side of the hole in which it slides, and prevent its free movement therein.

Figures 4 and 6 represent modified forms of this part of my invention.

In these modifications, the inner end of the sliding rod itself is made wedge-formed, and the hole in which the rod slides is made sufficiently large to allow it the necessary vibration thereon.

As represented in fig. 4, the outer end of the sliding rod is kept in position by the enlargement *j*, which, while filling the hole in which it slides, will allow the inner end of the rod to vibrate sufficiently to adapt itself to such inequalities as there may be in the lengths of the lever-arms.

The same result is effected by the construction represented in fig. 6, which differs from that represented in fig. 4 only in the mode of keeping the outer end of the sliding rod in position.

In fig. 6, the collar *c*, which keeps the driving-pulley in position, as before explained, is formed so as to cover the end of the driving-shaft, and is provided with a hole smaller than that in the driving-shaft, in which the sliding rod plies, and by which it is kept in position.

Having described my invention, and pointed out some of the modifications of which it is susceptible, without departing from the principles which distinguish,

What I claim as new therein, and desire to secure by Letters Patent, is—

The arrangement of the wedge-formed bar *g*, operating in a central hole in the driving-shaft, the friction-arms *d*, springs *i*, and arms *e*, substantially as and for the purpose described.

E. B. BIGELOW.

Witnesses :

NANCY E. MEANS,

HERBERT T. WHITMAN.