No. 845,105. PATENTED FEB. 26, 1907.

H. V. LOSS.

RIVETING MACHINE.

APPLICATION FILED DEC. 1, 1905.

2 SHEETS—SHEET 1.

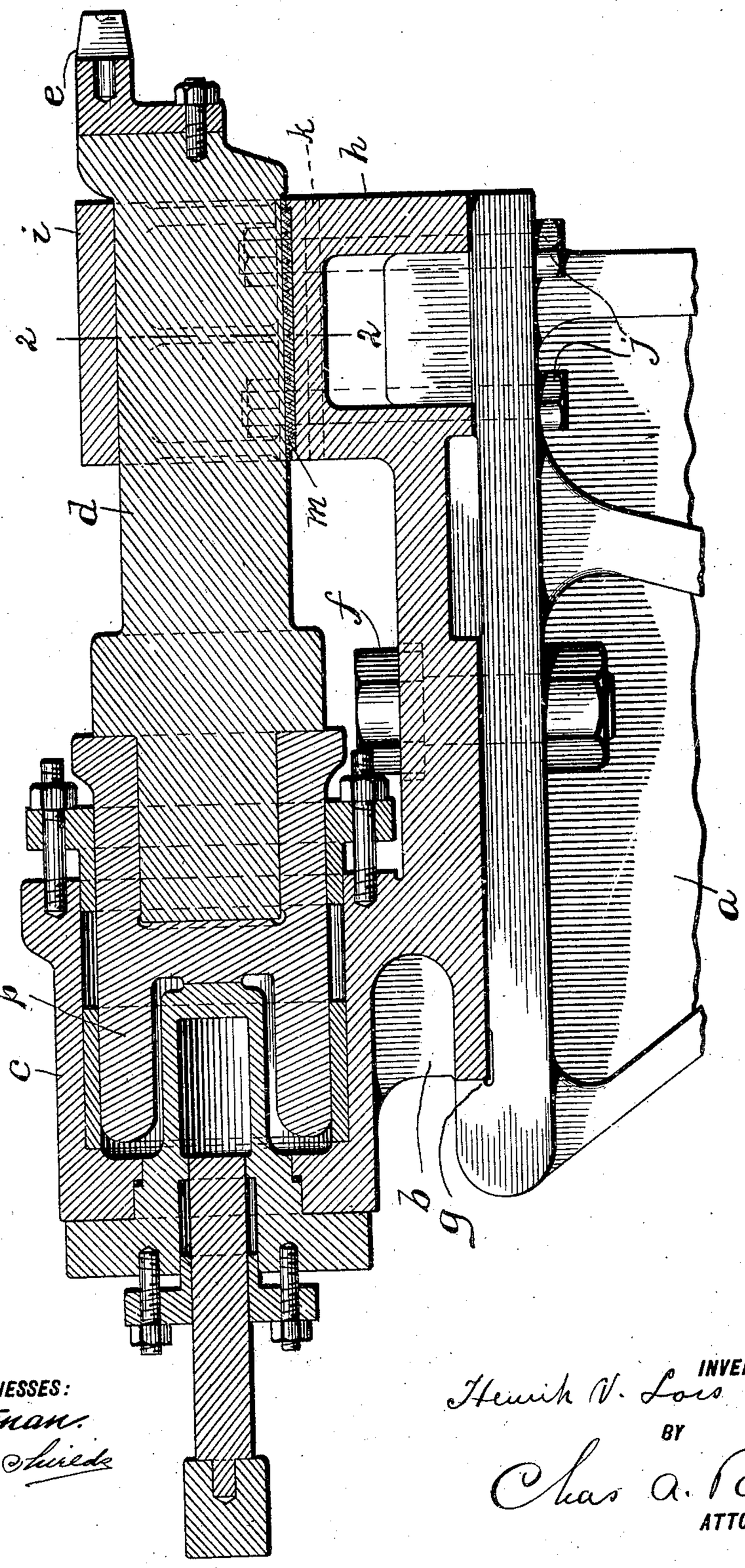

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

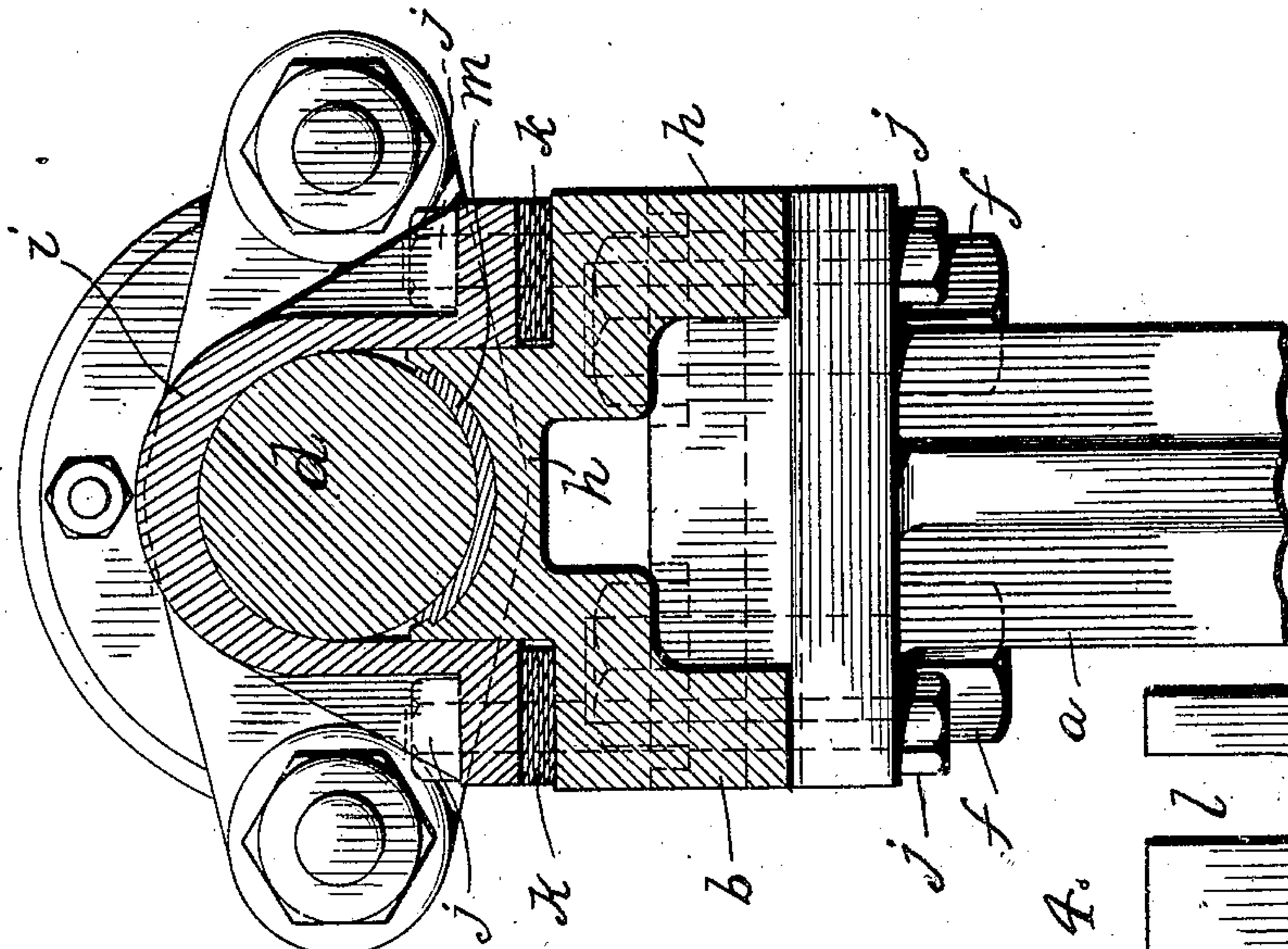


Fig. 4.

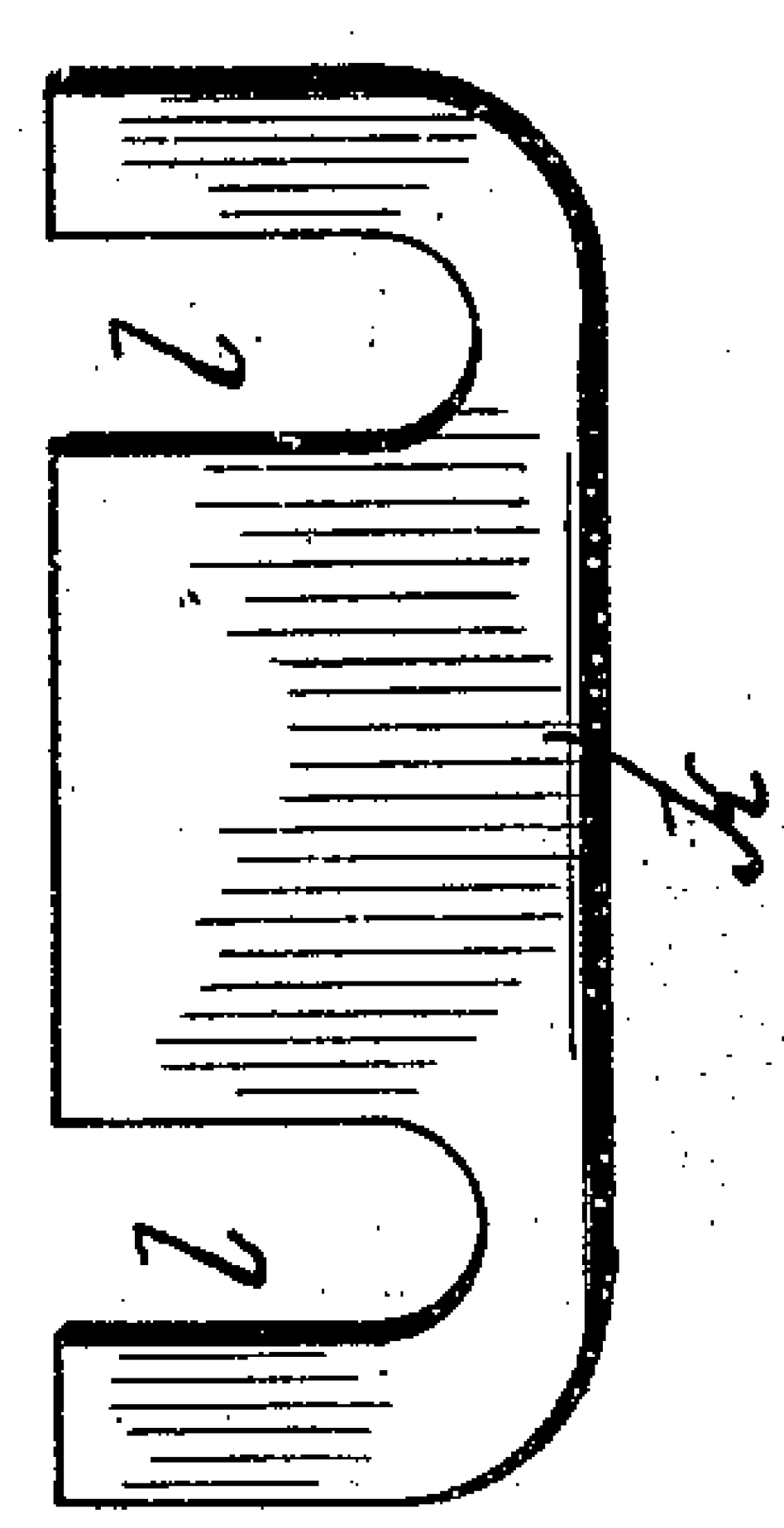
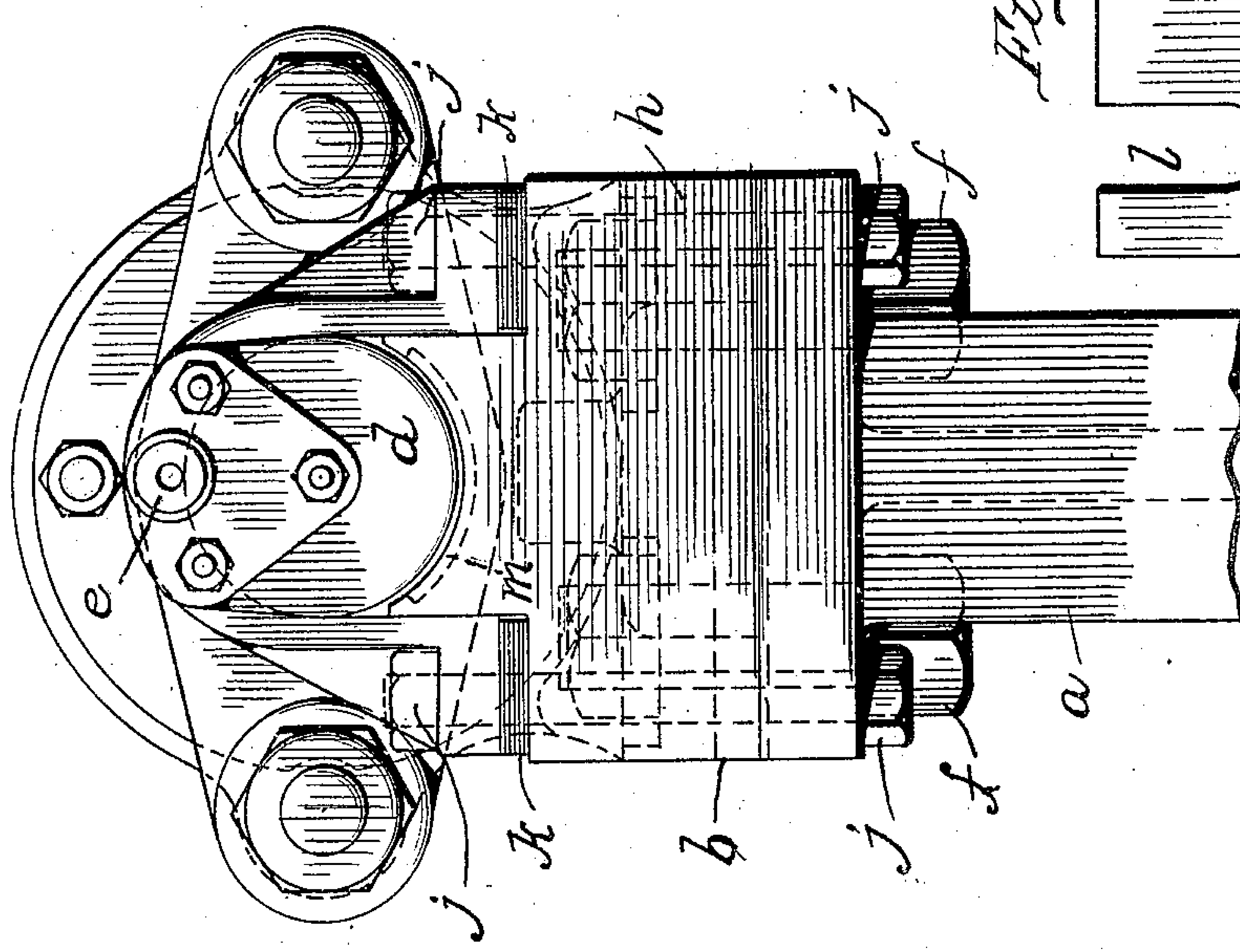


Fig. 3.



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HENRIK V. LOSS, OF PHILADELPHIA, PENNSYLVANIA.

RIVETING-MACHINE.

No. 845,105. Specification of Letters Patent. Patented Feb. 26, 1907.

Application filed December 1, 1905. Serial No. 289,819.

To all whom it may concern:

Be it known that I, HENRIK V. LOSS, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Riveting-Machines, of which the following is a specification.

My invention relates to improvements in riveting-machines; and the objects of my invention are, first, to furnish a riveting-machine the stake-frame and cylinder of which will be formed separately and which may be detachably secured together; second, to furnish in connection with the cylinder-casting a guide for directing the outer end of the piston or plunger, and, third, to furnish a means for conveniently compensating the wear upon the piston or plunger-guide.

In the accompanying drawings, forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views, Figure 1 is a side elevation of the upper end of one leg of the stake and a central longitudinal sectional elevation through the cylinder and connected parts of a hydraulic riveting-machine embodying my improvements; Fig. 2, a section of Fig. 1 on line 2 2; Fig. 3, an end elevation of Fig. 1; Fig. 4, a plan of one of the liners.

a is the upper end of the cylinder-carrying leg of the stake of a riveting-machine.

b is a casting forming a separate unit, in one end of which is formed a cylinder *c*, and the other or forward end of which forms or carries a guide for the outer end of the plunger *d*, which forms part of or is carried by the piston *p* and which carries the riveting-tool *e*.

The casting *b* carries the piston *p* and all the other working parts of the machine, and this casting, with the parts that it carries, forms a unit which is secured to the leg *a* of the stake by bolts *f*. Upon the rear end of the top of the leg *a* is an abutment *g*, against which the rear end of the base of the casting *b* impinges when the casting is secured to the leg by the bolts *f*. The forward end *h* of the casting *b* forms or carries a circular bearing for the outer end of the plunger *d*, which is circular in cross-section, and while this bearing may be formed directly in the outer end of the casting I prefer to form it partly by the casting and partly by a cap *i*, which is secured to the casting by bolts *j* and which may be removed to permit the insertion or removal of the plunger or which may be adjusted to compensate for wear by removing one or more liners *k*, Figs. 2, 3, and 4, which are interposed on both sides between the bottom of the cap *i* and the top of the part *h* of the casting *b*. The form preferred for the cap *i* is best shown in Figs. 2 and 3, and the form preferred for the liners is shown in Fig. 4. The liners are formed of thin sheets of metal and are preferably furnished with slots *l* to permit them to slid be in past the bolts *j*.

m is a bushing of Babbitt or other suitable metal carried by the top of the part *h* of the casting *b* to form a smooth and easily-replaceable bearing for the bottom of the plunger *d*. For convenience the riveting-tool *e* is carried upon the upper end of the front of the plunger *d*, and in operation the principal wear will take place between the under side of the top of the cap *i* and the top of the plunger. When this wear becomes serious, one or more of the liners *k* are removed, and the nuts on the bolts *j* are set up until the cap *i* again bears properly on the plunger. It will be observed that the bolts *j* not only serve to hold the cap *i* in place, but also act to hold the forward end of the U-shaped casting *b* against the top of the stake-leg *a*.

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

1. In a riveting-machine, in combination, a stake-frame, a piston-carrying cylinder, a piston, a cylindrical plunger secured to and concentric with said piston, and a cylindrical guide for said plunger, said cylinder and guide forming together a separate unit adapted to be bolted to said stake-frame.

2. In a riveting-machine, in combination, a stake-frame, a substantially U-shaped piece in one leg of which is formed a cylinder for the driving-piston and in the other leg of which is formed a cylindrical guide for the plunger, said cylinder and guide being upon the same longitudinal axis and said U-shaped piece being adapted to be bolted to said stake.

3. The combination in a riveting-machine of a substantially U-shaped frame in one end of which is formed a cylinder and the other end of which carries the under part of a cylindrical plunger-guide, a piston carried by said cylinder, a cylindrical plunger carried in axial alinement by said piston, said plunger passing over said guide, and a cap secured to said guide under which the upper part of said plunger passes.

4. The combination in a riveting-machine,

of a substantially U-shaped frame in one leg of which is formed a cylinder and the other leg of which forms part of a plunger-guide, a cap adapted to be bolted to said guide-leg to complete the plunger-guide, a piston working in said cylinder, a plunger working in said guide, and means for compensating the wear between said cap and plunger without dismantling said plunger-guide and cap.

5. The combination in a riveting-machine, of a substantially U-shaped frame in one leg of which is formed a cylinder and the other leg of which forms part of a cylindrical plunger-guide, a cap adapted to be bolted to said guide-leg to complete the plunger-guide, a piston working in said cylinder, a plunger of circular cross-section, in axial alinement with said piston, working in said guide, and means whereby the wear between said cap and plunger may be compensated without dismantling said plunger-guide and cap.

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Witnesses:
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