

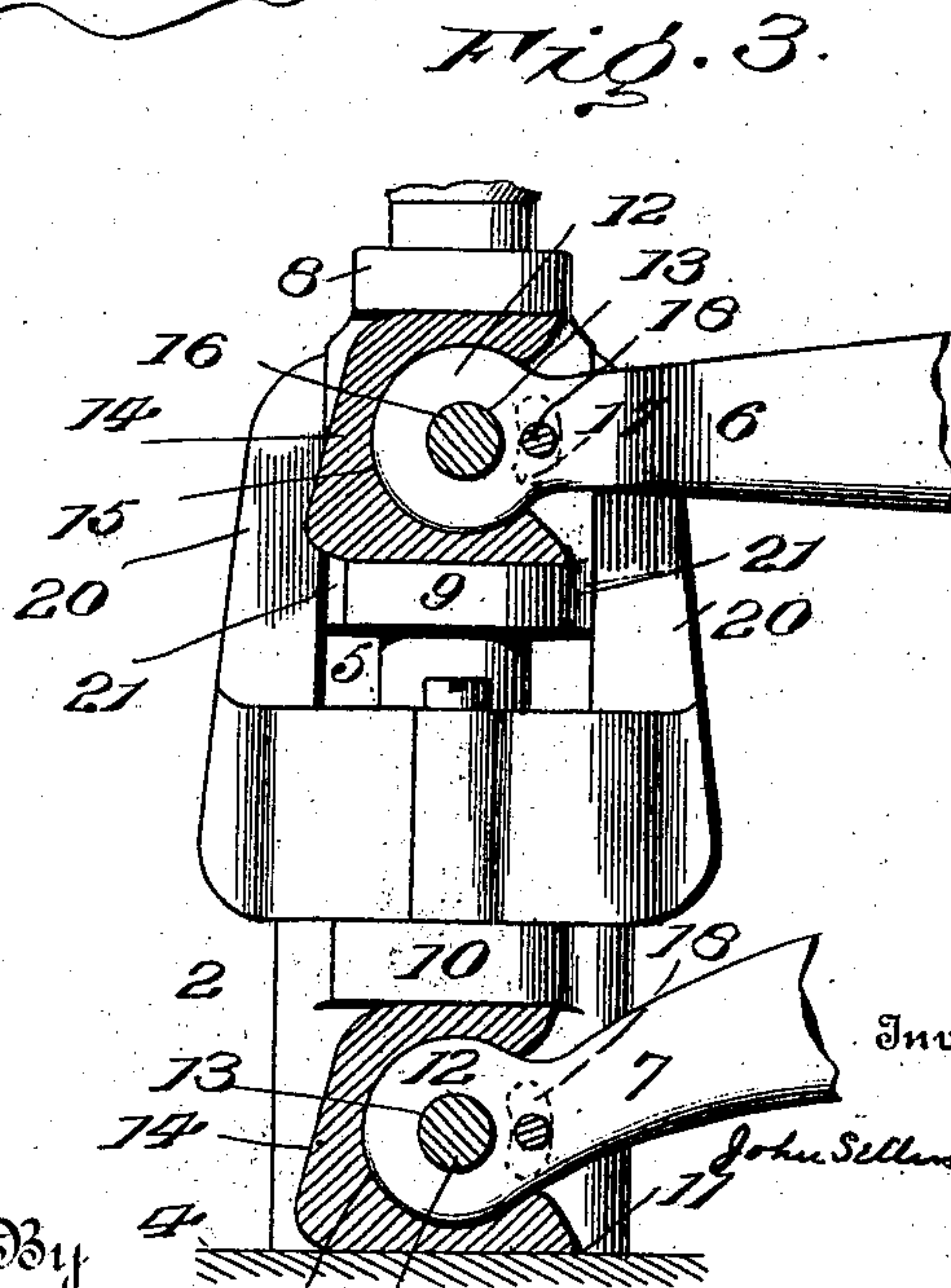
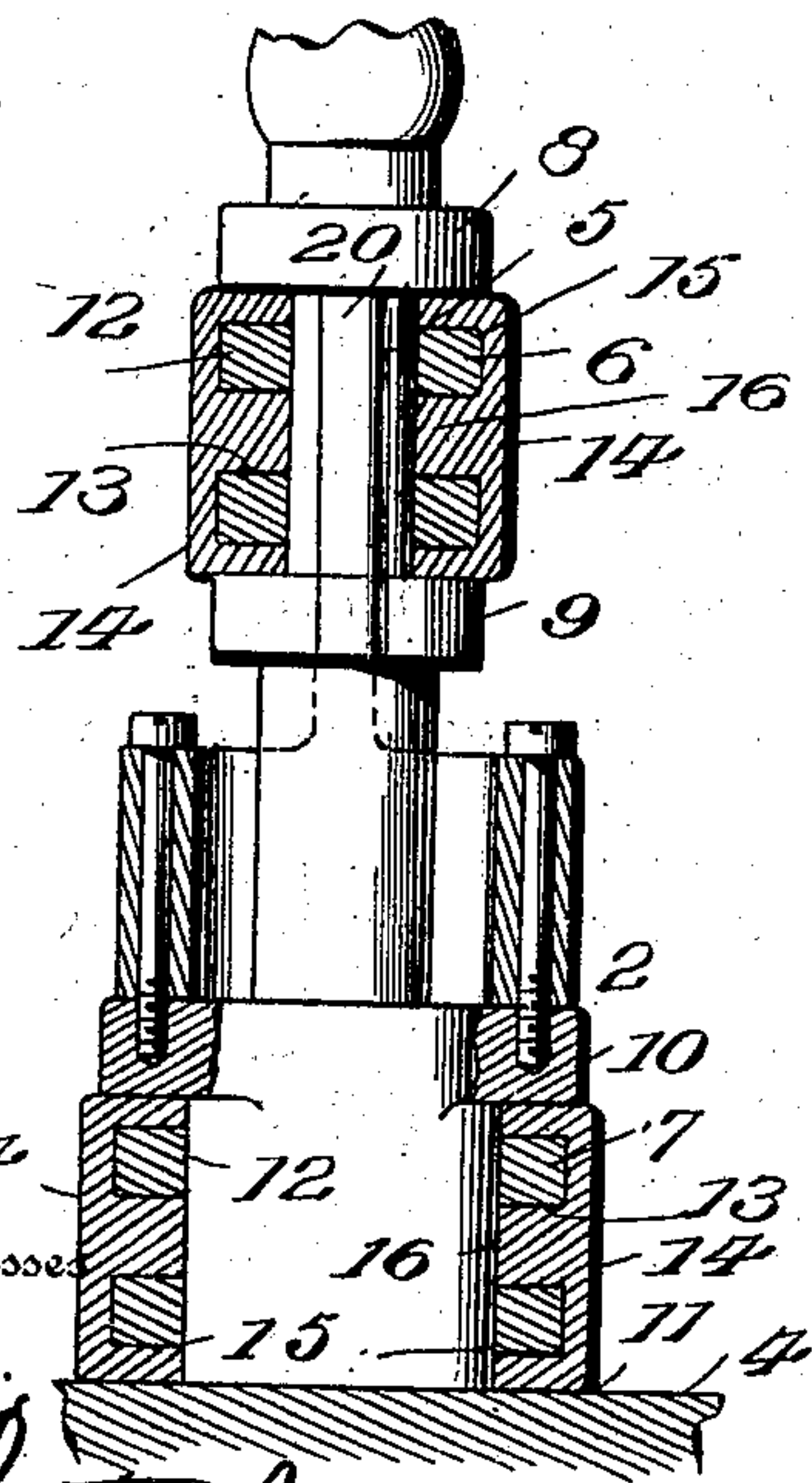
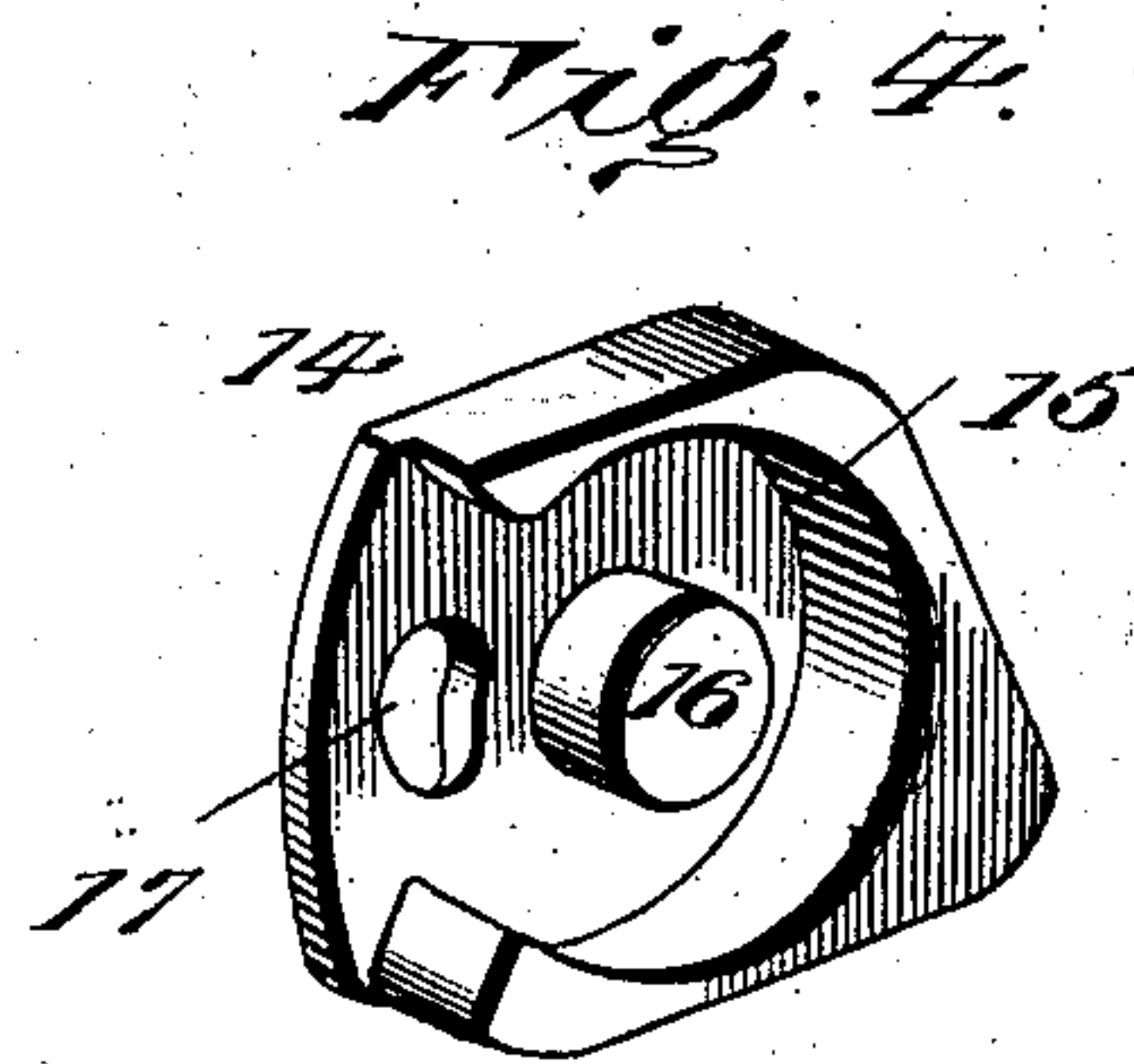
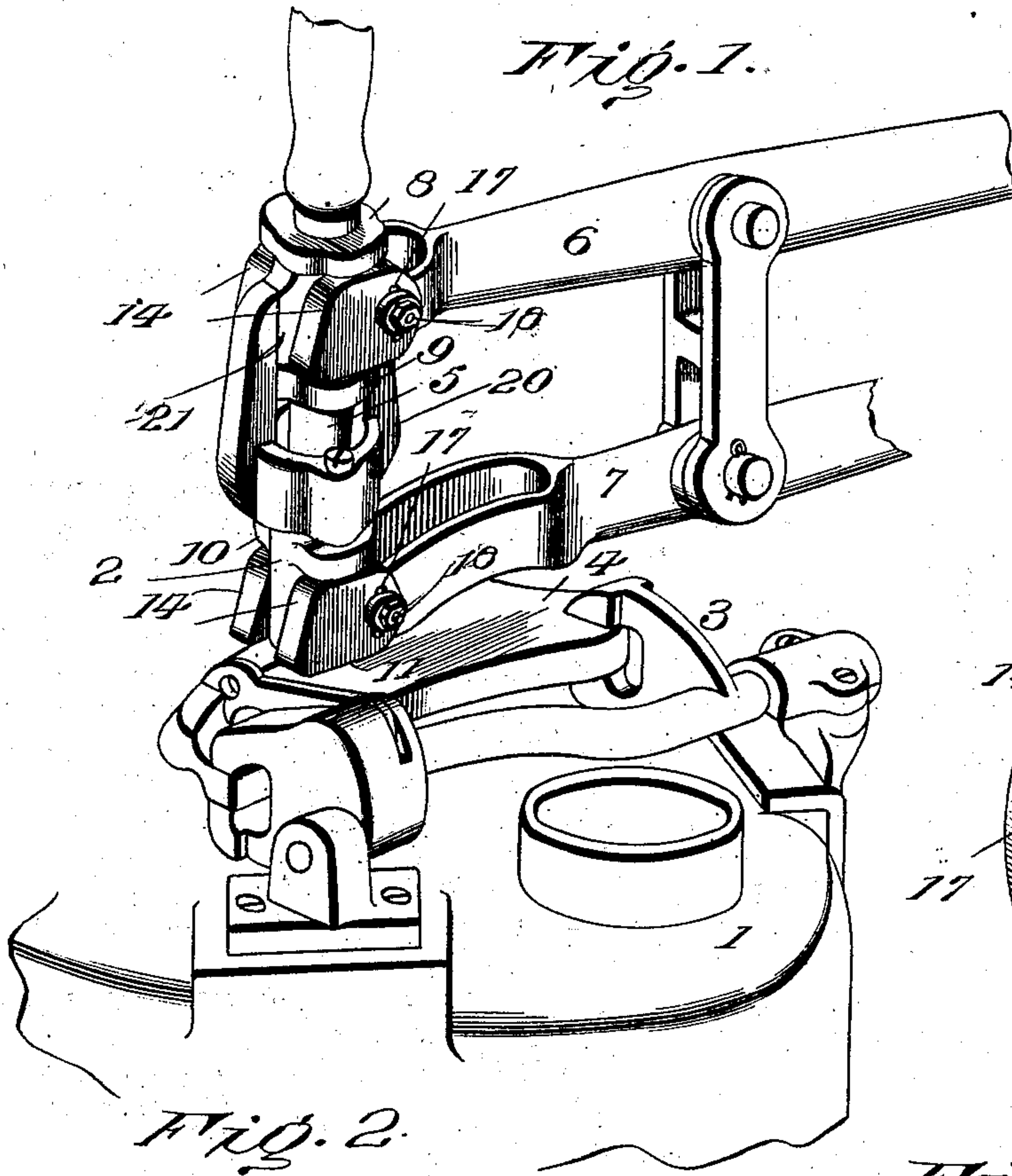
No. 700,290.

Patented May 20, 1902.

J. S. BANCROFT.
PUMP ACTUATING MECHANISM FOR TYPE MACHINES.

(Application filed Dec. 8, 1901.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

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PUMP-ACTUATING MECHANISM FOR TYPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 700,290, dated May 20, 1902.

Application filed December 3, 1901. Serial No. 84,542. (No model.)

To all whom it may concern:

Be it known that I, JOHN SELLERS BANCROFT, of Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Pump-Actuating Mechanism for Type-Machines; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures of reference marked thereon.

This invention relates to improvements in the metal-injecting mechanism of Patents Nos. 625,998 and 674,374, and is designed to prevent faulty action of the pump and preserving the adjustment of its actuating devices by eliminating or neutralizing certain disturbing elements incident to the prior structures.

The organization of the metal-injecting devices of the patents mentioned is such that the pump as a whole reciprocates toward and from the mold, the pump-actuating levers, the one engaging the piston-rod and the other the cylinder, following such movements of the pump for purposes of accommodation, but receiving independent motion for operating the pump when the latter is in communication with the mold. The two motions—those of the pump and of the actuating-levers—being performed about different centers result in a sliding motion of the points of contact between the actuating-levers and their bearings upon the cylinder and piston, respectively, which, taken in connection with the application of the relatively high degree of power transmitted in ejecting the metal, causes a rapid wearing or battering of the surfaces in contact. This not only interferes with the ready withdrawal of the actuating-levers, as when the melting-pot is swung clear of the mold, but it also deranges the adjustments necessary for effective action. Moreover, a strong tendency is developed to force the piston laterally in its cylinder, causing it to bind therein, resulting in a rapid wear of the cylinder or plunger, or both, and otherwise seriously interfere with the proper per-

formance of its functions. To overcome these defects is the purpose of the present improvements, which latter include the application of guides to the pump-cylinder, said guides coöperating with the upper portion of the piston-rod to resist lateral displacement under the action of the actuating-levers, and the interposition of shoes or slides between the engaging end of the actuating-levers and their bearings on the piston-rod and cylinder, respectively, said shoes or slides being pivotally attached to the levers and movable in guides on the pump, so as to furnish wide bearing-surfaces over which the blow or percussive action is distributed, thereby avoiding the battering and destruction of said bearing-surfaces and preserving the parts in their adjusted position.

The preferred form of embodiment will first be explained in connection with the accompanying drawings, after which the novel features will be pointed out in the claims.

Figure 1 is a perspective view of a portion of the previously-patented pump mechanism, showing the improvements as applied thereto. Fig. 2 is a transverse vertical section through the engaging ends of the actuating-levers, the piston-rod being shown in elevation. Fig. 3 is a side elevation, partly in section, of the connection between the actuating-levers and pump. Fig. 4 is a perspective view of one of the shoes looking toward the inner face thereof.

Similar numerals indicate like parts in the several figures.

For purposes of illustration and description only such portions of the patented fluid-metal-injecting devices necessary to an understanding of the invention are shown. These include the melting-pot 1, the upper end of the pump-cylinder 2, the lever 3, engaging flange 4 on the pump-cylinder for reciprocating the latter relatively to the mold, the piston-rod 5, and the connected actuating-levers 6 7, of which the upper one, 6, has its engaging end lying between collars 8 9 on the piston-rod, while the lower one, 7, projects between collars or bearings 10 11 on the cylinder.

As heretofore constructed the rounded ends of the actuating-levers 6 7 were fitted between and directly engaged the opposing faces of their respective collars 8 9 and 10 11, with the result that under the violent action of said lever the surfaces soon became battered and worn to such an extent as to materially interfere with the proper delivery of metal. Not only did it affect the various adjustments through which the action of the pump is controlled and regulated, but the destructive action increased progressively as the bearing-surfaces became worn away, besides which there was developed an increased tendency of the plunger to bind and cut, owing to the lateral displacement of its piston-rod. To remedy this, each lever 6 7 has the branches of its furcated engaging end formed or provided with semicylindrical bearings 12 and a central aperture 13 for the reception of a block or slide 14, the latter formed or provided with a semicylindrical recess 15 in one side and a central bearing 16. The upper and lower faces of blocks 14 are parallel, and each block is fitted to work easily between its collars or guides 8 9 or 10 11, accordingly as it coöperates with the piston-rod or the cylinder. The forward end of each block is slightly beveled to facilitate entrance between the collars and is further provided with an elongated opening 17 for the accommodation of a pin 18 or equivalent holding device carried by the lever. By these means the wear resulting from the difference in motion between the actuating-levers and the members of the pump instead of being concentrated is distributed over the relatively larger contact-surfaces 12 13 15 16, the opposite faces of blocks 14, and the collars 8 9 or 10 11 and this without in any manner interfering with the normal operation of the pump mechanism, including the withdrawal and insertion of the actuating-levers to release or engage the piston-rod. To further guard against the binding of the piston, there is erected upon the upper portion of the pump-cylinder two vertical guides or bars 20, of which the inner one stands between the furcated end of lever 6. Upon the piston-rod 5 are formed or applied parallel surfaces 21, fitted to work vertically between

guides 20. These guides stand in the plane of oscillation of the actuating-lever and resist lateral motion which might otherwise be communicated to the piston-rod through said actuating-lever, and they do not interfere with the withdrawal of the piston-rod either from the cylinder or from its actuating-lever.

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

1. In a metal-injecting mechanism such as described, the combination with the pump-cylinder and piston-rod, each provided with collars or shoulders, of the actuating-levers and the slides pivotally attached to said levers and engaging the collars on the pump-cylinder and piston-rod respectively; substantially as described.

2. In a metal-injecting mechanism such as described, the combination with the cylinder and piston-rod and the connected furcated actuating-levers of the shoes fitted to transverse guides on the cylinder and piston-rod, respectively, and each provided with a semicylindrical recess and central pin engaging a semicylindrical bearing and central recess on one branch of each actuating-lever; substantially as described.

3. In a metal-injecting mechanism such as described, the combination with the cylinder, piston-rod and actuating-levers therefor, of the guides applied to the cylinder and engaging the piston-rod to resist lateral motion, substantially as described.

4. In a metal-injecting mechanism, such as described, the combination with the piston-rod and cylinder of the pump and the connected actuating-levers whose furcated engaging ends embrace the cylinder and piston-rod, respectively, and engage opposite collars thereon, of guides carried by the cylinder in the plane of movement of the furcated engaging ends of the levers, said guides engaging the piston-rod on opposite sides thereof beyond the cylinder; substantially as described.

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