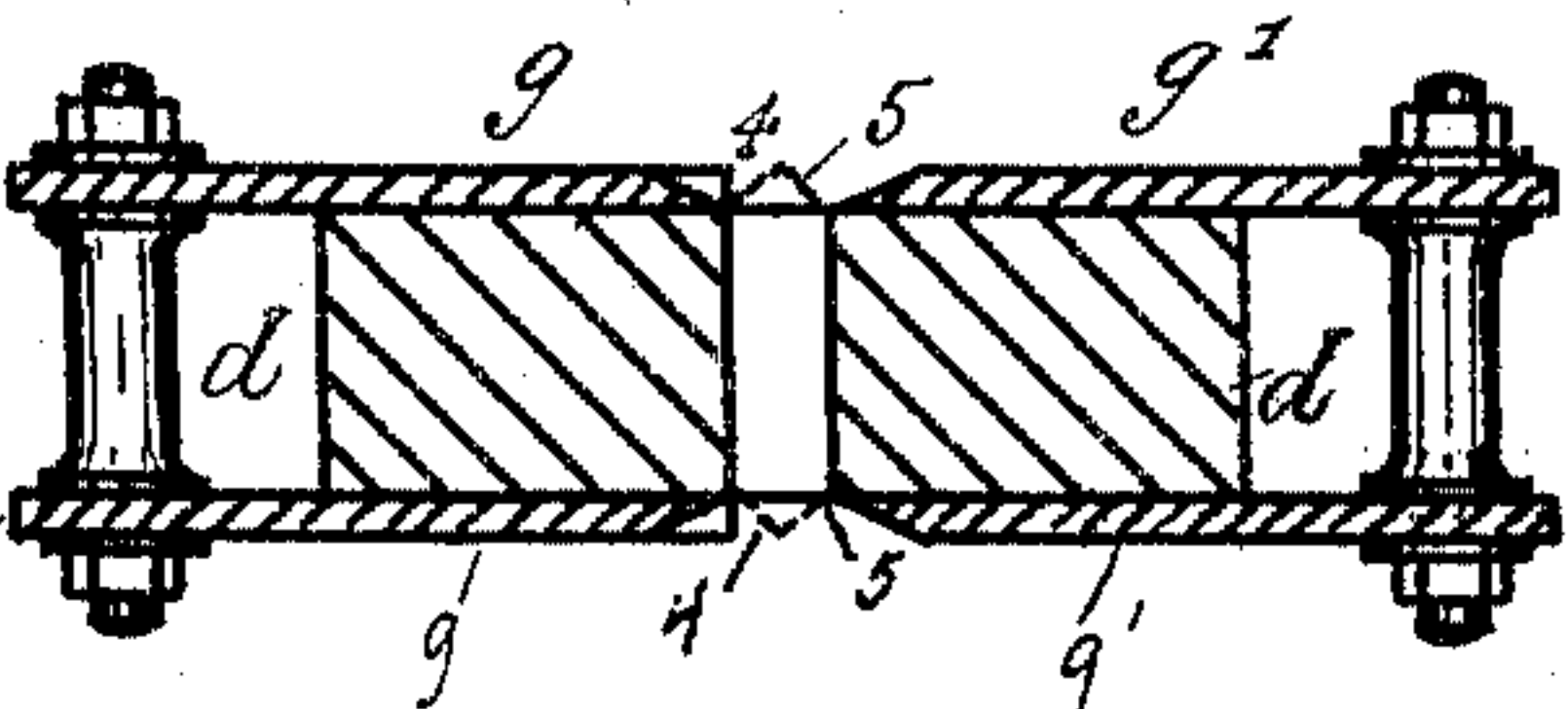
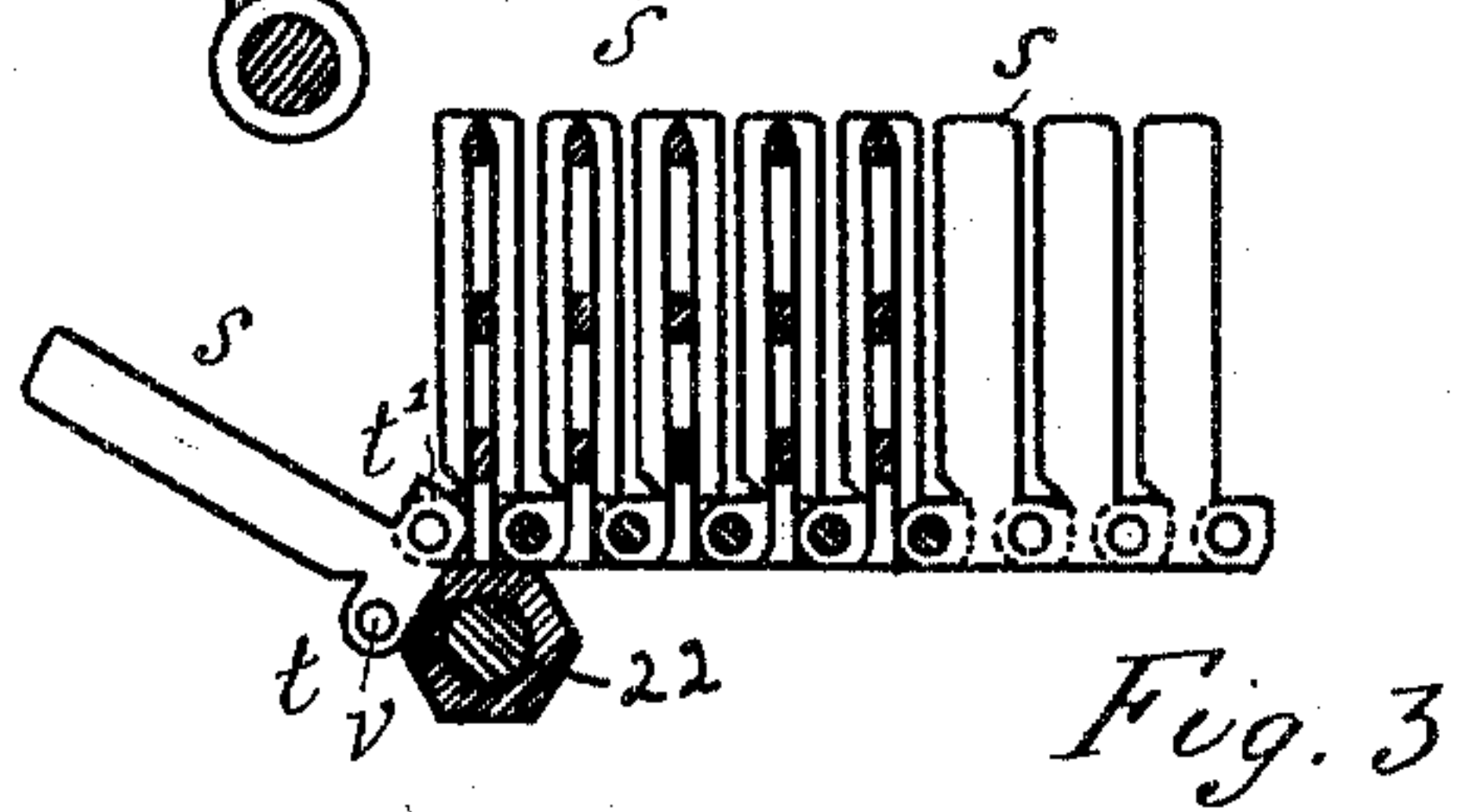
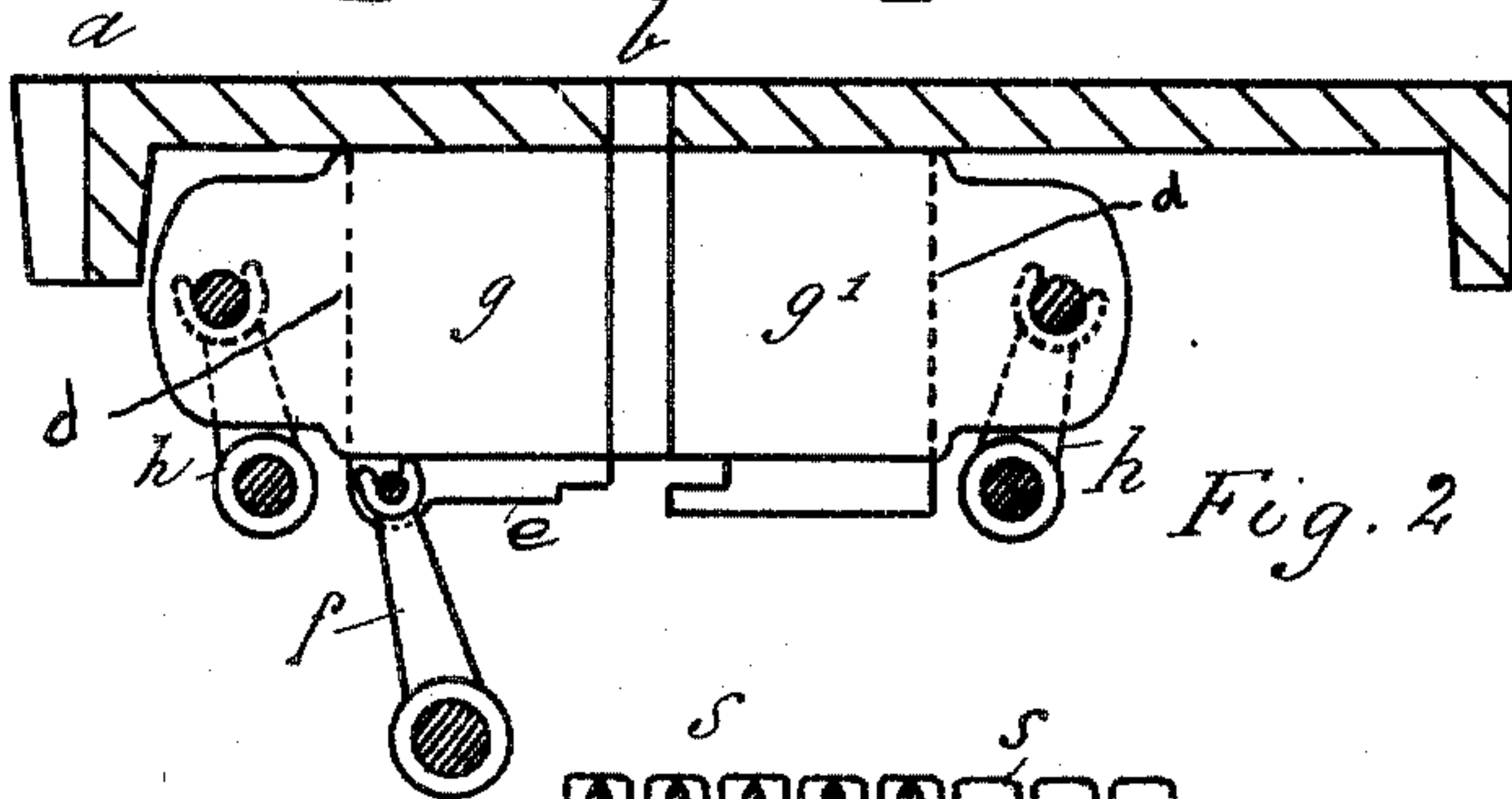
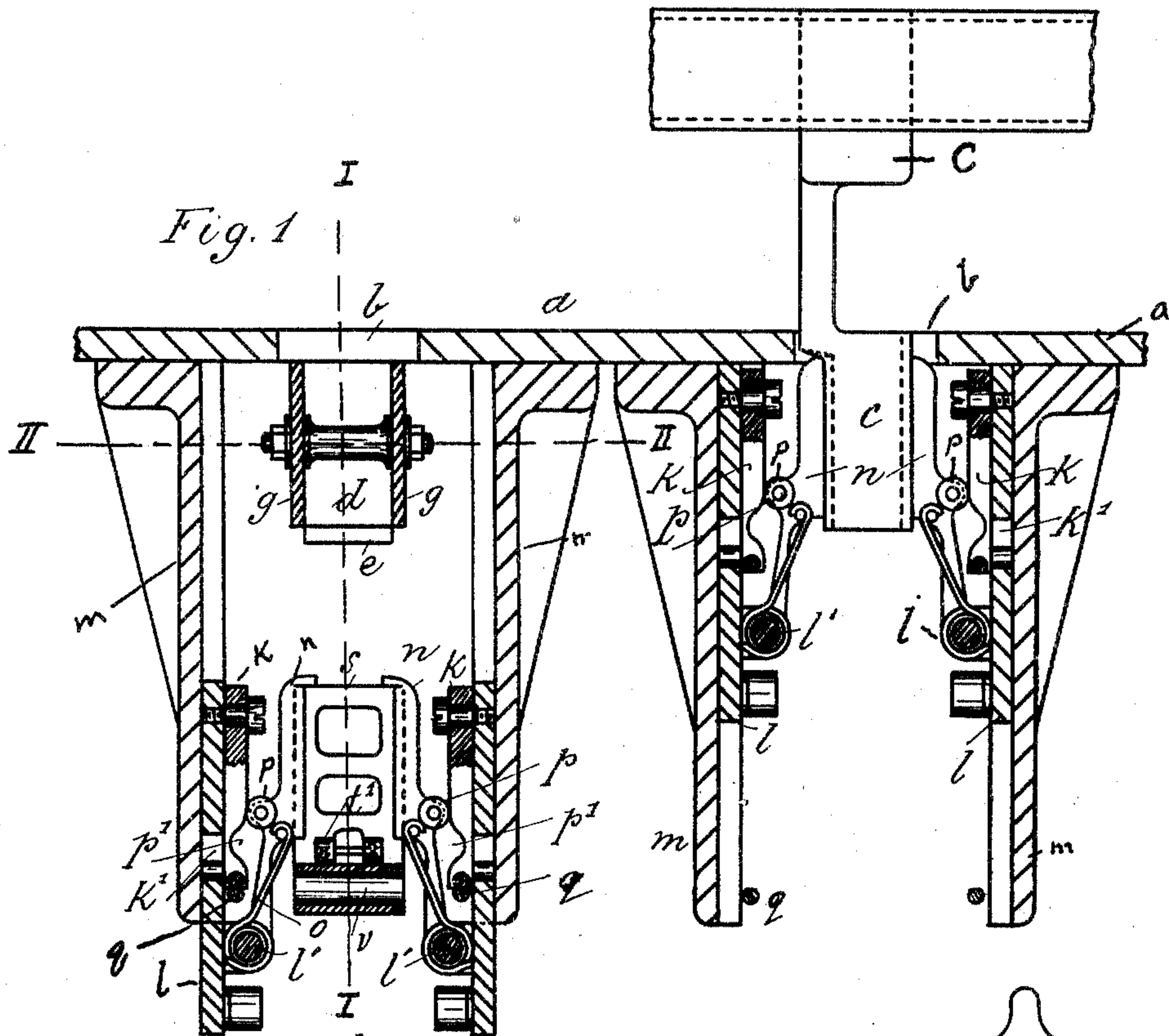


R. E. FISCHER.

FOLDING APPARATUS FOR BOXES OR THE LIKE.

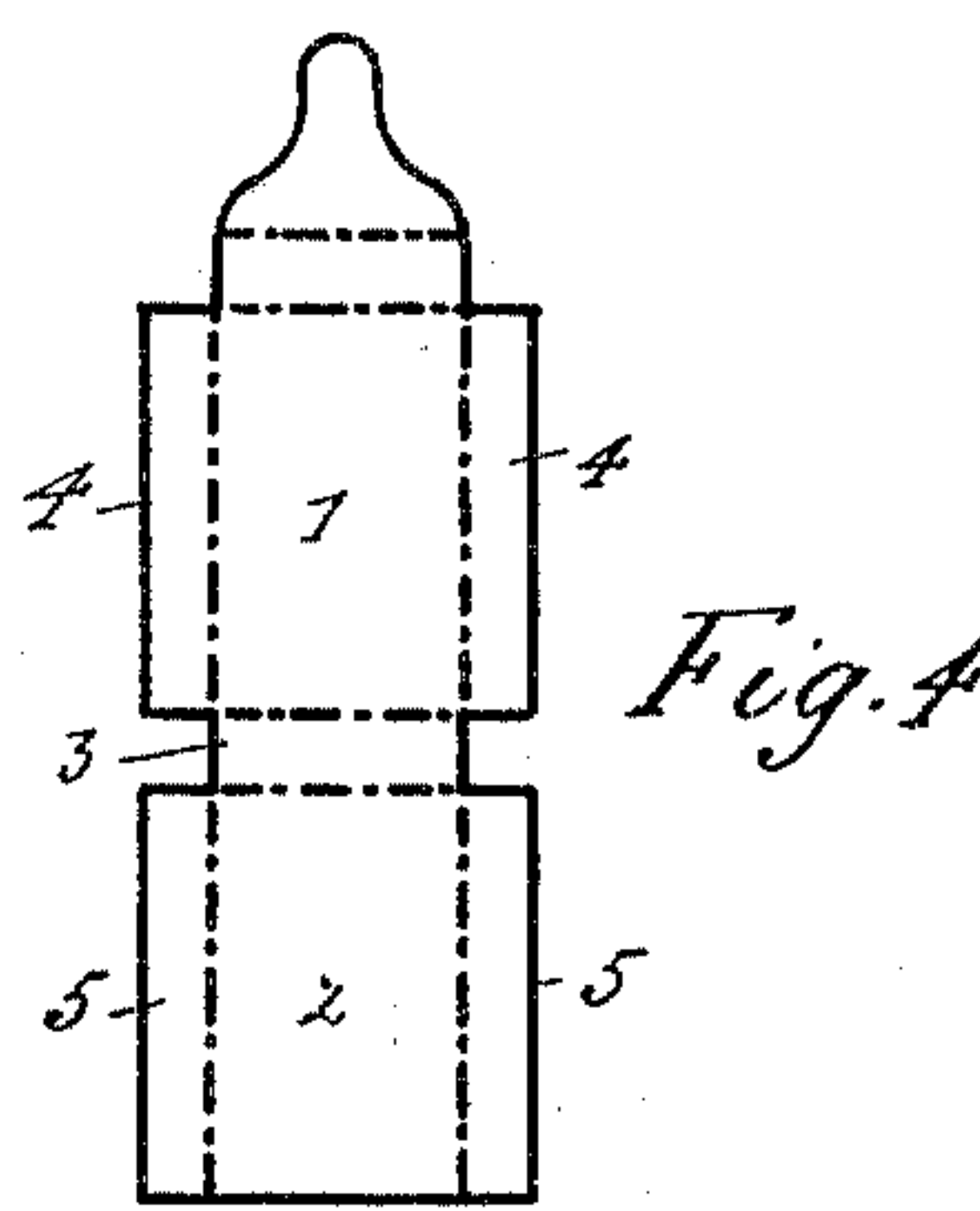
APPLICATION FILED JUNE 17, 1903.

2 SHEETS—SHEET 1.



Witnesses
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No. 784,147.

PATENTED MAR. 7, 1905.

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2 SHEETS—SHEET 2.

Fig. 5

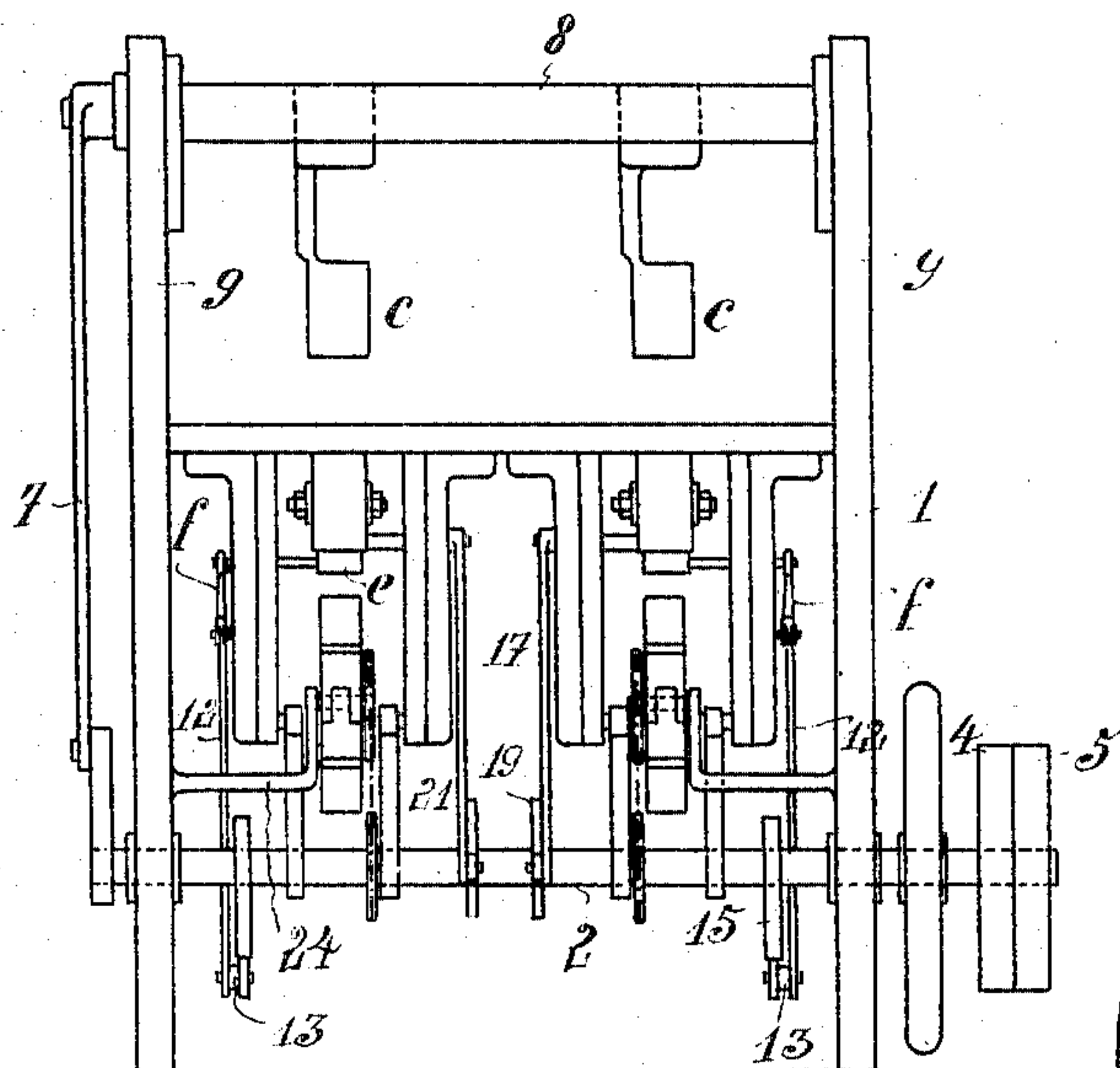


Fig. 6

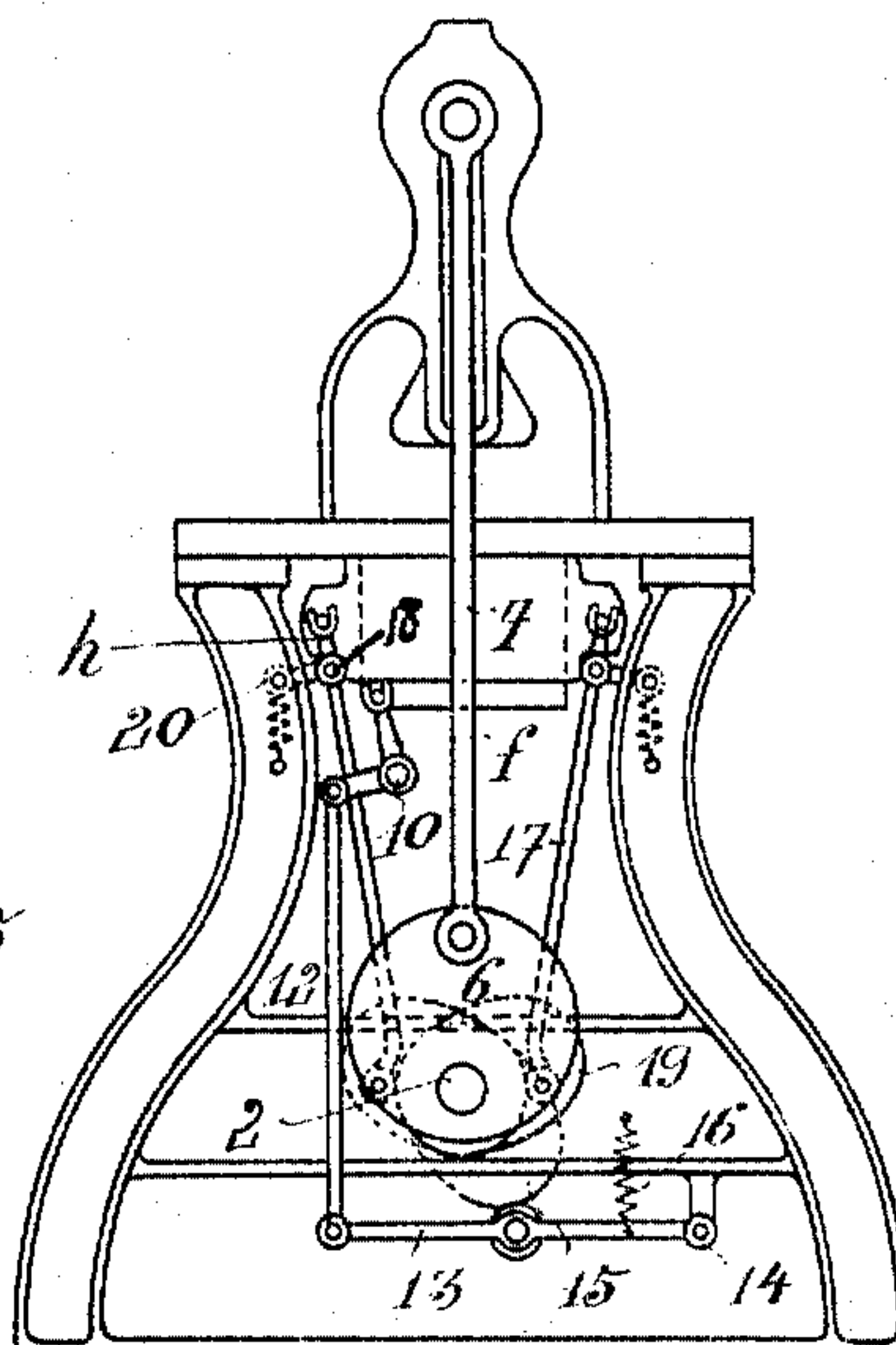
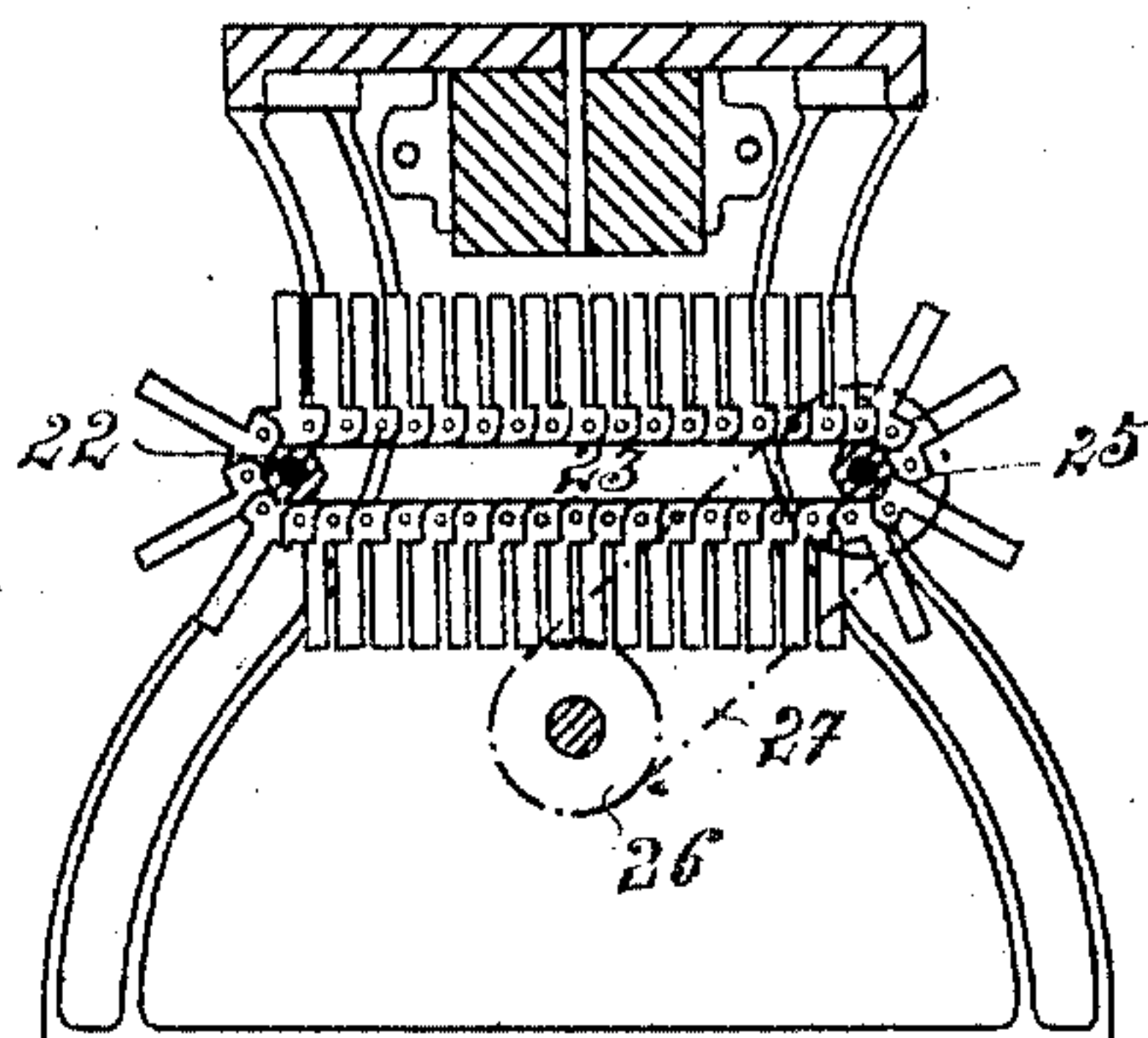


Fig 7



Witnesses

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ROBERT ERNST FISCHER, OF BARMEN, GERMANY.

FOLDING APPARATUS FOR BOXES OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 784,147, dated March 7, 1905.

Application filed June 17, 1903. Serial No. 161,938.

To all whom it may concern:

Be it known that I, ROBERT ERNST FISCHER, a subject of the Emperor of Germany, residing at Wertherhofstrasse 3, in the city of Barmen, Rhenish Prussia, Empire of Germany, have invented a new and useful Improvement in Folding Apparatus for Boxes or the Like, of which the following is a specification.

My invention has for its object a contrivance by means of which boxes of paper or any other material suitable to gluing may be folded or formed in the proper form, then removed from the folding means and inserted into a transporting means in such a manner that it will be protected from all sides and hindered from springing open at the glued portions.

My invention is more clearly described in the following specification and illustrated on the accompanying drawings, on which—

Figure 1 is a vertical section of the contrivance; Fig. 2, a section taken at right angle to Fig. 1. Fig. 3 is a horizontal section along line II II of Fig. 1. Fig. 4 shows the blank of the box. Fig. 5 is a vertical elevation of the complete machine. Fig. 6 is a side view thereof, and Fig. 7 is a vertical section taken at right angle of Fig. 5 along line III III.

Like characters of reference indicate like parts in the drawings.

a is a base-plate of the machine, having cut therein openings or slots b , through which an upper stamp c , which may be reciprocated by any suitable means, may enter, as shown in Fig. 1. To the under face of the base-plate and at both sides of the slot b are fixed pieces d , which may be made adjustable against each other and are arranged to receive the stamp c .

On the bottom of d is guided a slide e , which may be reciprocated by a lever-arm f , and so open or close the channel between both pieces d . In said channel the blank, Fig. 4, or a similar one is treated and for this purpose is brought over the slot b . The stamp c in going down forces the blank into the channel, bending the side portions 1 and 2 rectangularly with respect to the bottom 3 of the box. Now the side flaps 4 and 5 have to be folded. These flaps are gummed before being laid on the slot. They are alternately treated by the

creasing means g g' , which are arranged on both sides of the pieces d and may be reciprocated by lever-arms h . In operating, the said slides g first fold the flaps 4, and when returning the other slides, g' , are forwarded, folding the folders 5 over the flaps 4. Both flaps are then glued together.

In order to turn the folded box out of the channel, so that the latter cannot spring open, the following means are provided: To the base-plate a are fastened the vertical standards m , as shown, which are arranged to receive plates l , that are raised and lowered in said standard by any suitable means. These plates carry other plates, k , which may slide thereon by means of the slots k' . To said plates l are linked at l' fingers n , forming hooks at their upper ends and having at their outer faces rollers p , while the inner faces are straight, as shown. The fingers are adapted to turn on their pivots l' . They are opened and closed in the following manner: When the rollers p slide on the plates k , the fingers are closed and adapted to lie close against the folded box contained in the channel, so that the latter when now removed from the channel, which takes place after the slide e is shifted away, is closely held between said fingers engaging the flaps, so that the latter cannot spring open. In this state the box is delivered to a transporting-chain, the single members of which form sheaths for the boxes, so that the latter until they are turned out of the machine are prevented from breaking open.

For the delivering purposes the fingers must be first opened. In order to allow this operation, there are arranged bolts q on the standards m , by which the downgoing plates k are retained, while the fingers are still lowered until rollers p fit into the recesses p' . Now the fingers can be opened by springs o , as shown.

The chain receiving the boxes consists of members s , which are of essentially double-T section. They are provided at their bottom with loops t t' on each side, one pair standing nearer together than the other ones in order to be inserted between the respective loops of the adjacent member and joined therewith by

pivots *v*, two members forming, according to their sectional shape, a sheath for the box which incloses it and prevents their flaps to spring open. The chain is moved in any suitable way.

It may be mentioned that any number of the folding and removing devices may be contained in only one machine.

Figs. 5, 6, and 7 illustrate a complete machine and the manner in which the several parts are operated. In the standards 1 of the machine carrying the base-plate *a* is located a shaft 2, driven by the loose and fast pulley 4 5. To said shaft is fixed a crank-disk 6, which reciprocates, by means of a rod 7, a rail 8, which being suitably guided in standards 9 carries the stamps *c*, that are raised and lowered for folding the blank, as described before.

The bottom slide *e*, Figs. 1, 2, and 5, is oscillated by an arm *f*, to the spindle 10 of which is keyed another arm, 11, connected by a rod 12 to a lever 13, pivoted at 14 and being operated upon by a cam 15, mounted on shaft 2. A spring 16 serves for returning lever 13 and its accessories in the other position.

The folding-plates *g g'* are reciprocated in the following manner: Their arms *h*, Figs. 2, 5, 6, are extended to arms 17, both turning on pivot 18. Arms 17 are operated upon by cams 19, while springs 20 draw them back in the contrary position. Now to the shaft 2 are keyed the cams 21, which operate the plates *l* in raising them, while the contrary movement of said plates may be obtained by springs or weights. The chain which receives the single boxes and carries them away is shown in its operation in Figs. 2 and 7. It is mount-

ed on shafts 22 23, which are turnably secured in brackets 24, extending from the standards 1. Shaft 23 carries a spocket-wheel 25, and a like wheel 26 is fixed on shaft 2, so that a chain 27, connecting both chain-wheels, may serve for driving the box-receiving chain, as shown.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is--

1. A machine for folding boxes and the like comprising a bed, having a slot, a vertically-reciprocated stamp to engage said slot, fixed pieces forming a channel round the slot, a slide reciprocated at the bottom of the channel and two pairs of creasing-flaps guided at the sides of the fixed pieces substantially as shown and for the purpose set forth.

2. In a box-folding machine, a plunger, a bed, lateral standards supporting said bed, plates slidably mounted on the standards and adapted to reciprocate thereon, cams slidably mounted on the plates and provided with a recess, box-engaging fingers linked to the reciprocating plates, and provided with rollers on their outer sides to engage said recesses, and springs to actuate said fingers.

3. In a box-folding machine in combination, a plunger, means for folding a blank around the plunger to form a box, means for stripping the box from the plunger, and means comprising a chain having members of double-T section, adapted to receive the box-blanks as they are stripped from the plunger.

ROBERT ERNST FISCHER.

Witnesses:

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