

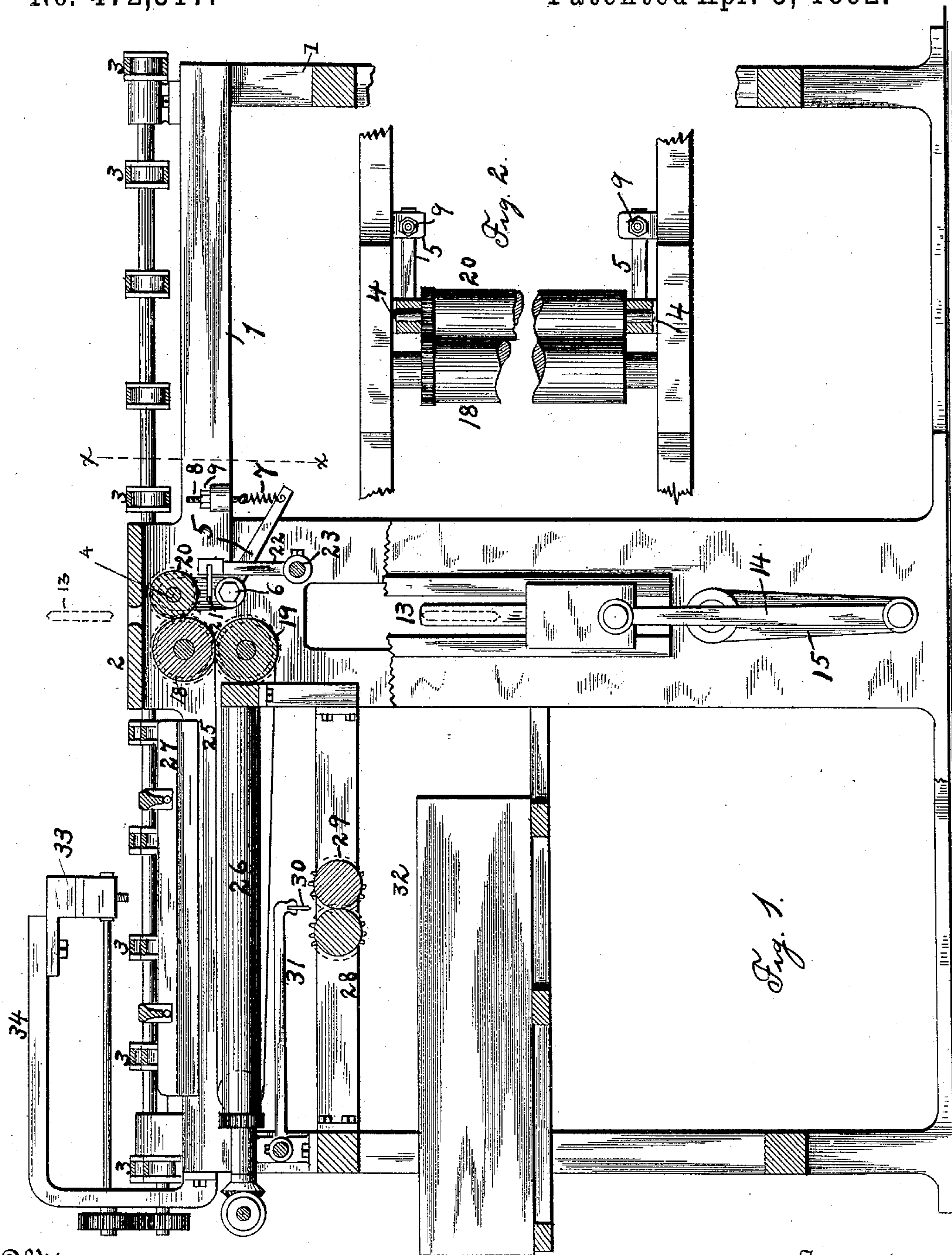
(No Model.)

3 Sheets—Sheet 1.

J. H. STONEMETZ.  
PAPER FOLDING MACHINE.

No. 472,317.

Patented Apr. 5, 1892.



Witnesses  
R. H. Southgate  
J. J. Rafferty

Inventor  
John H. Stonemetz.  
By his Attorney  
Louis W. Southgate

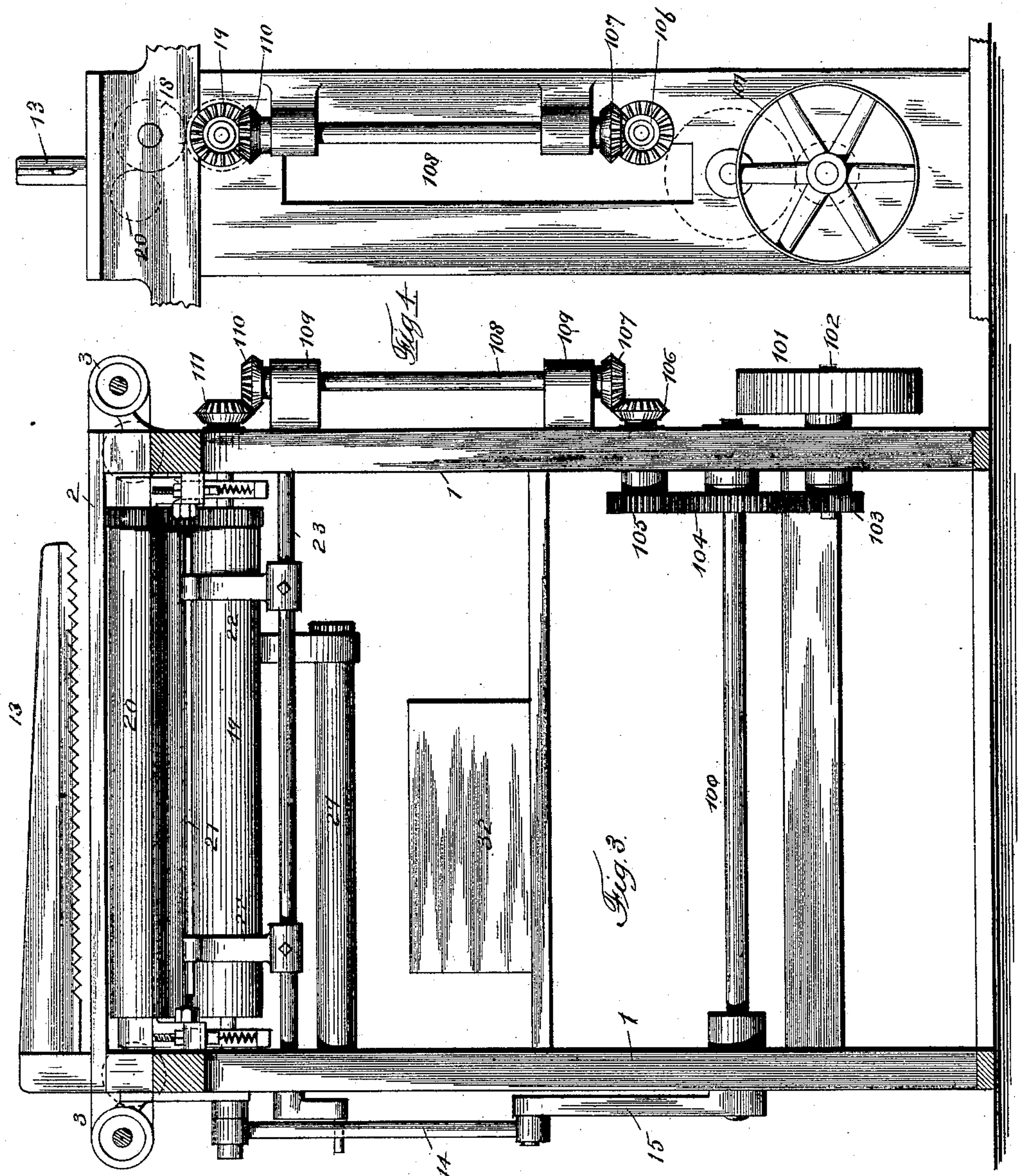
(No Model.)

3 Sheets—Sheet 2.

**J. H. STONEMETZ.**  
**PAPER FOLDING MACHINE.**

No. 472,317.

Patented Apr. 5, 1892.



## Witnesses

Walter S Bowen

R. H. Southgate

Inventor

John H. Stonemetz

By his Attorney

Attorney  
Louis W. Southgate



(No Model.)

3 Sheets—Sheet 3.

J. H. STONEMETZ.  
PAPER FOLDING MACHINE.

No. 472,317.

Patented Apr. 5, 1892.

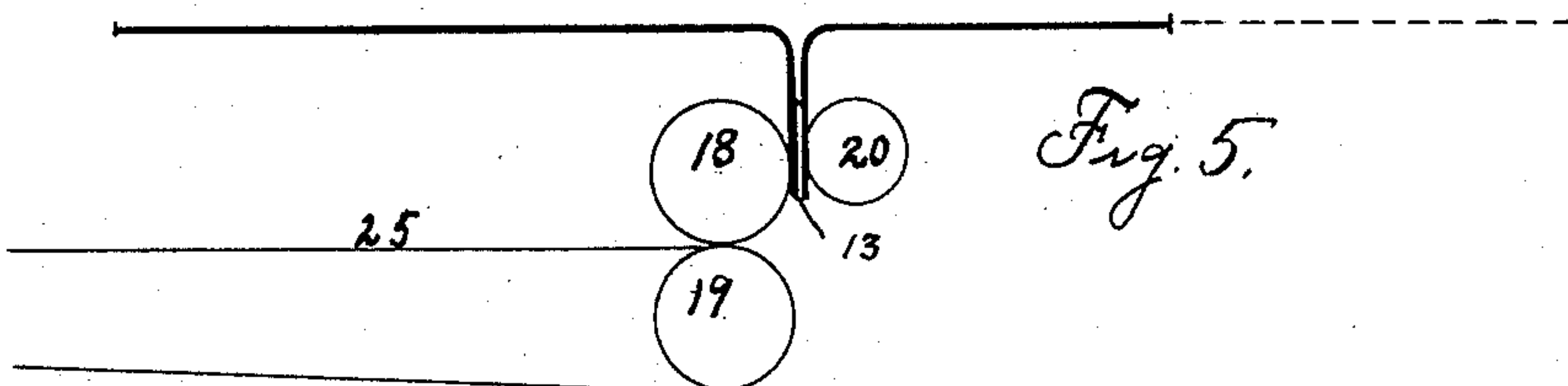
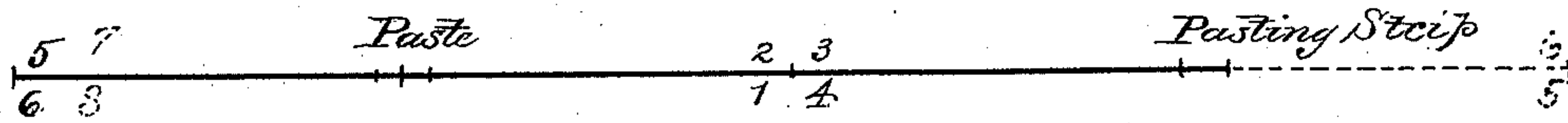


Fig. 5.

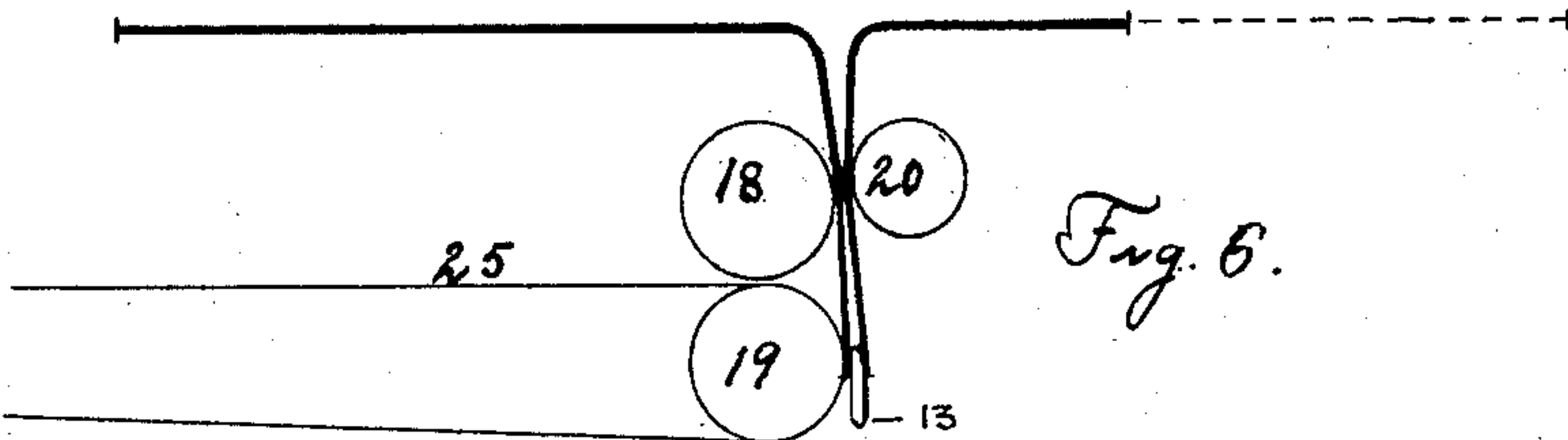


Fig. 6.

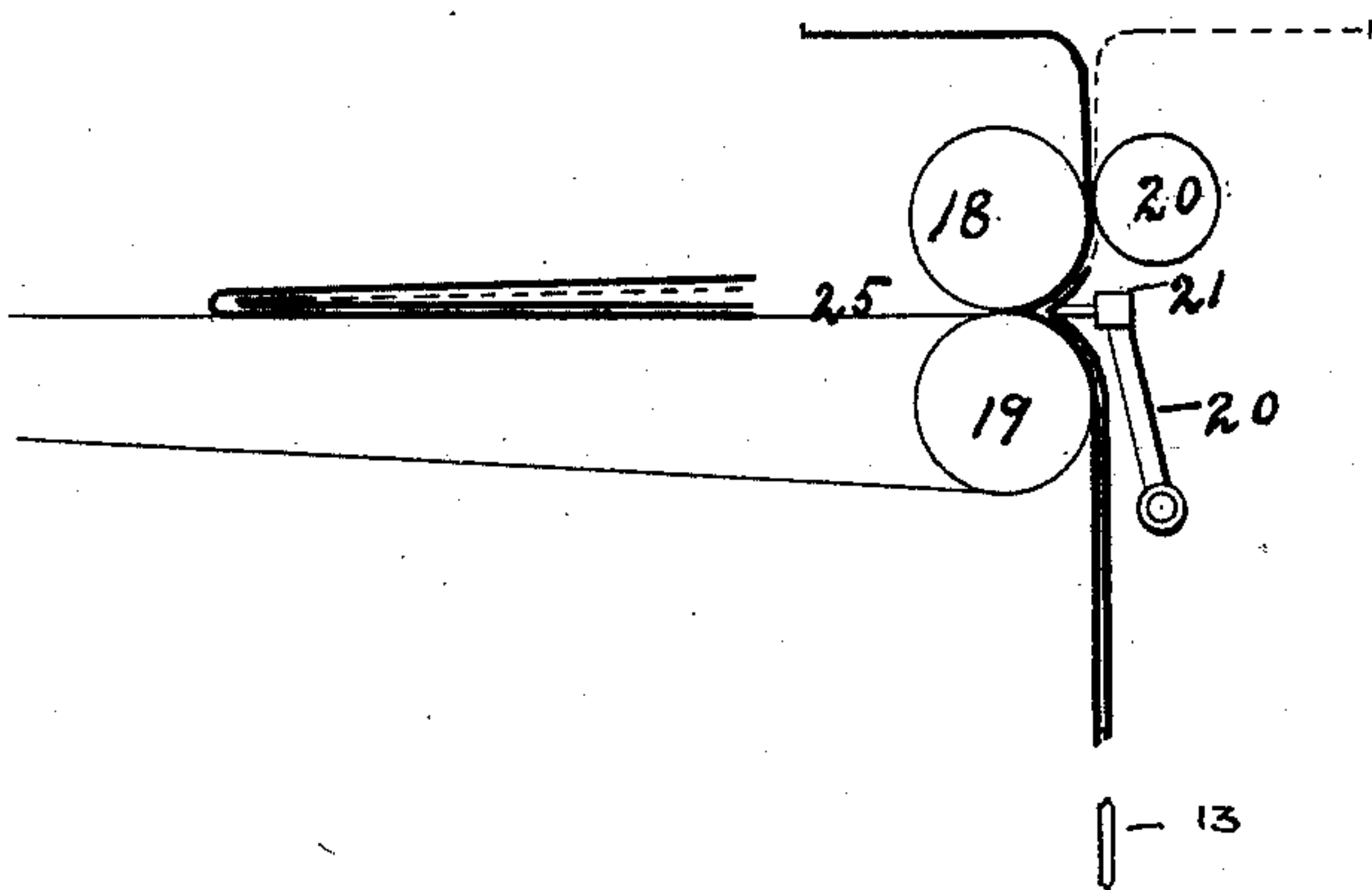


Fig. 7.

Witnesses

R. H. Southgate  
James J. Rafferty

Inventor

John H. Stonemetz.

By his Attorney

Louis W. Southgate

# UNITED STATES PATENT OFFICE.

JOHN H. STONEMETZ, OF MILLBURY, MASSACHUSETTS, ASSIGNOR TO THE  
STONEMETZ PRINTERS' MACHINERY COMPANY, OF SAME PLACE.

## PAPER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 472,317, dated April 5, 1892.

Application filed June 29, 1891. Serial No. 397,854. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. STONEMETZ, a citizen of the United States, residing at Millbury, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Paper-Folding Machines, of which the following is a specification.

The aim of this invention is to produce a compact paper-folding machine by which a six or eight page paper can be quickly and accurately folded.

To this end the invention consists of the device described and claimed in this specification and illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of the complete machine. Fig. 2 is a plan of the rollers between which the sheet is first tucked. Fig. 3 is a section on line *xx* of Fig. 2, looking to the right. Fig. 4 is a rear elevation showing the driving gearing, and Figs. 5, 6, and 7 are diagrammatic views illustrating the way in which the paper is folded.

In detail, 1 represents the frame suitably formed to support the mechanism. The frame is carried up in the center of the machine, and bolted across the same is the guide-plate 2. A series of endless tapes 3 3 are mounted upon suitable pulleys in the usual manner, and these tapes act to carry the sheets onto the machine over the guide-plate 2. The sheets are fed onto these tapes 3 3 by any suitable means—as from a feed-table or from the delivery mechanism of a printing-press—and the tapes are driven by any of the well-known mechanisms. The tapes on the left-hand side of the machine are carried over supplemental loose pulleys so as to clear the tucker-blade 27.

Mounted to reciprocate on the frame is the serrated knife 13. This knife is fitted in a suitable reciprocating bearing, which works on planed ways on the side of the frame, as indicated in Fig. 1. The knife is given a reciprocating movement by means of link 14 and crank 15, which is fastened on the shaft 100, which latter is journaled in the frame. This shaft 100 has mounted thereon the gear 104, which is driven by pinion 103, which latter is mounted on shaft 102, and on the outside end of this shaft 102 is fastened the gear

or driving pulley 101. Mounted in the frame under the guide-plate 2 are the folding-rollers 18, 19, and 20, and these rollers are geared so as to run together, and the roller 20 is movable to and from the roller 18. The roller 19 is driven from the gear 104 by the pinion 105, bevel gears 106 and 107, upright shaft 108, mounted in bearings 109, and bevel gears 110 and 111, which latter is fastened on the shaft of the roller 19. This gearing is designed so that the peripheral speed of the rolls 18 and 20 is less than the speed of the knife 13, when the crank is at the middle of its throw, for a purpose hereinafter described. The shaft 4 of the roller 20 is held at each end by bell-crank levers 5 5, which are pivoted to the frame by the bolts 6 6. To the other ends of the bell-crank levers are fastened the springs 7 7. These springs are fastened to eyes 8 8, and the latter pass through lugs on the frame and are adjusted by means of nuts 9 9. By this means it will be seen that the roll 20 is held tightly against the roll 18, but that the same may be moved away from the roll 18. Thus the knife 13 can pass between these rolls by forcing the same open but that the rolls will tightly bite the sheet as soon as the knife passes beyond the same. Of course the gears connecting rolls 18 and 20 are of such a design that as the knife 13 passes between the said rolls the gears will not be moved far enough apart to be thrown out of mesh.

A suitable tucker-blade 21 is carried by the arms 22, mounted on a shaft 23, journaled in suitable bearings on the frame, and the shaft 23 is actuated by means of any of the well-known tucker-blade-operating mechanisms. This tucker-blade is adapted to tuck the sheets between the folding-rollers 18 19. Running around the roll 19 are the endless tapes 25, which carry the sheets over the top of the folding-rollers 26 26. These folding-rollers 26 26 are geared to run together, and a suitable tucker 27 starts the sheets between these rollers. From the folding-rollers 26 26 the sheets are carried under the tucker-blade 30 and over the folding-rollers 28 29. The tucker-blade 30 is carried by the arms 31, and the blade is operated from any of the well-



known tucker-blade-operating mechanisms. The sheets drop from the folding-rollers 28 29 into a suitable receiving-box 32. The operation of these folding-rollers and their tucker mechanism is so well understood that the same will not be further described; but it may be noted that instead of the two pairs of rollers shown any number of pairs could be used and arranged as desired, so as to give the sheet any desired number of folds.

A suitable paste-box 33 is adjustably mounted on the bracket 34, so that a line of paste will be deposited on the sheet at the point indicated as the same is carried onto the machine by the tapes 3 3. The paste-roll may be driven from the sheet-feeding mechanism, as shown, if so desired.

The operation of the machine will now be described. A sheet, which may be either a six-page, as indicated in full lines, Fig. 5, or an eight-page, as indicated by dotted lines, is fed onto the machine and a line of paste deposited at the point indicated. The sheet is then carried by the knife 13 down between the rolls 18 and 20; but as soon as the knife 13 clears the rolls 18 and 20 the rolls will tightly bite the sheet. The knife 13 at this point (see Fig. 6) is traveling faster than the peripheries of the rolls 18 20, and as the sheet is firmly held by the rolls 18 20 the knife 13 will break through the same. The two halves will now be carried farther down by the rolls 18 and 20 and when in proper position the tucker 21 will start the double sheet thus formed between the rolls 18 and 19 and will thus give the same the next fold. From these rolls the sheet is carried by the tapes 25 to the folding mechanism before described, and is here given the further desired number of folds and deposited in the box 32. The action is just the same with a six or eight page paper. In one instance a small folding-strip is formed, and in the other the fourth leaf of

an eight-page paper, as is readily understood from the diagrams. Thus it is seen that a machine is provided that will paste, cut, and fold either a six or eight page paper in a very accurate and rapid manner.

The details of construction herein shown may be greatly varied by a skilled mechanic without departing from the scope of my invention.

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

1. A paper-folding machine consisting of the two folding-rollers, a knife mounted to reciprocate back and forth between said rollers and adapted on the downstroke to draw a sheet of paper between said rollers, gearing between said knife and rollers arranged so that the knife will be reciprocated at an accelerated speed relatively to the surface speed of the rollers, whereby the sheet is started between said rollers and is also severed on the line carried by the knife, and means for carrying off said sheet before the knife comes back between said rollers, substantially as described.

2. A paper-folding machine consisting of the folding-rollers 18, 19, and 20, the reciprocating knife 13 working between the rollers 18 and 20, gearing between said knife and rollers arranged so that the knife will be reciprocated at an accelerated speed relatively to the surface speed of the rollers, and the tucker 21, adapted to start the sheets between the rollers 18 and 19, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN H. STONEMETZ.

Witnesses:

LOUIS W. SOUTHGATE,  
R. H. SOUTHGATE.