

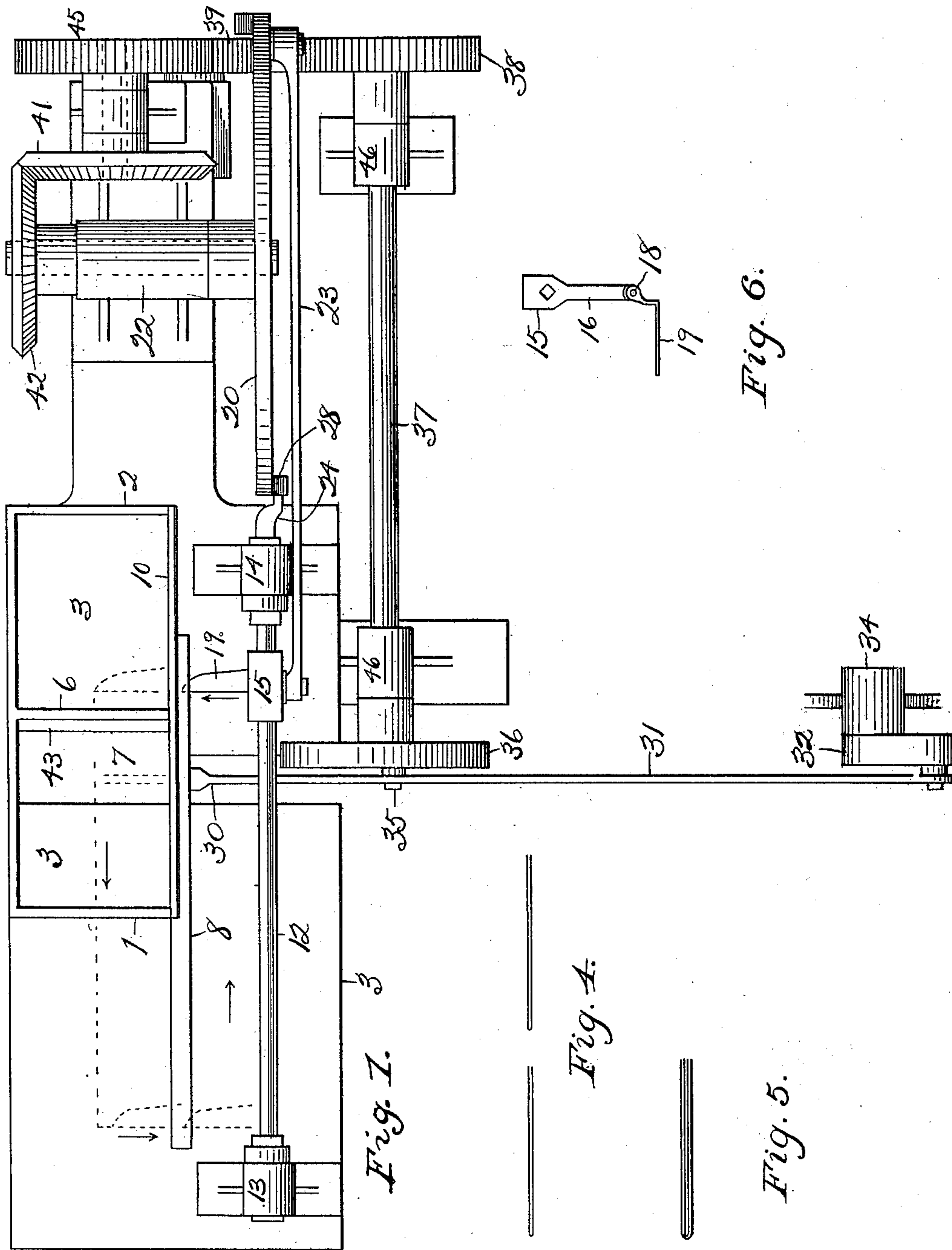
S. R. HAYDEN.

INSERTING MACHINE FOR NEWSPAPERS.

(Application filed Feb. 13, 1902.)

(No Model.)

3 Sheets—Sheet 1.



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K. M. Imboden,
W. L. Lange.

INVENTOR,

S. R. Hayden,

By Higdon & Higdon,
Attys

No. 707,587.

Patented Aug. 26, 1902:

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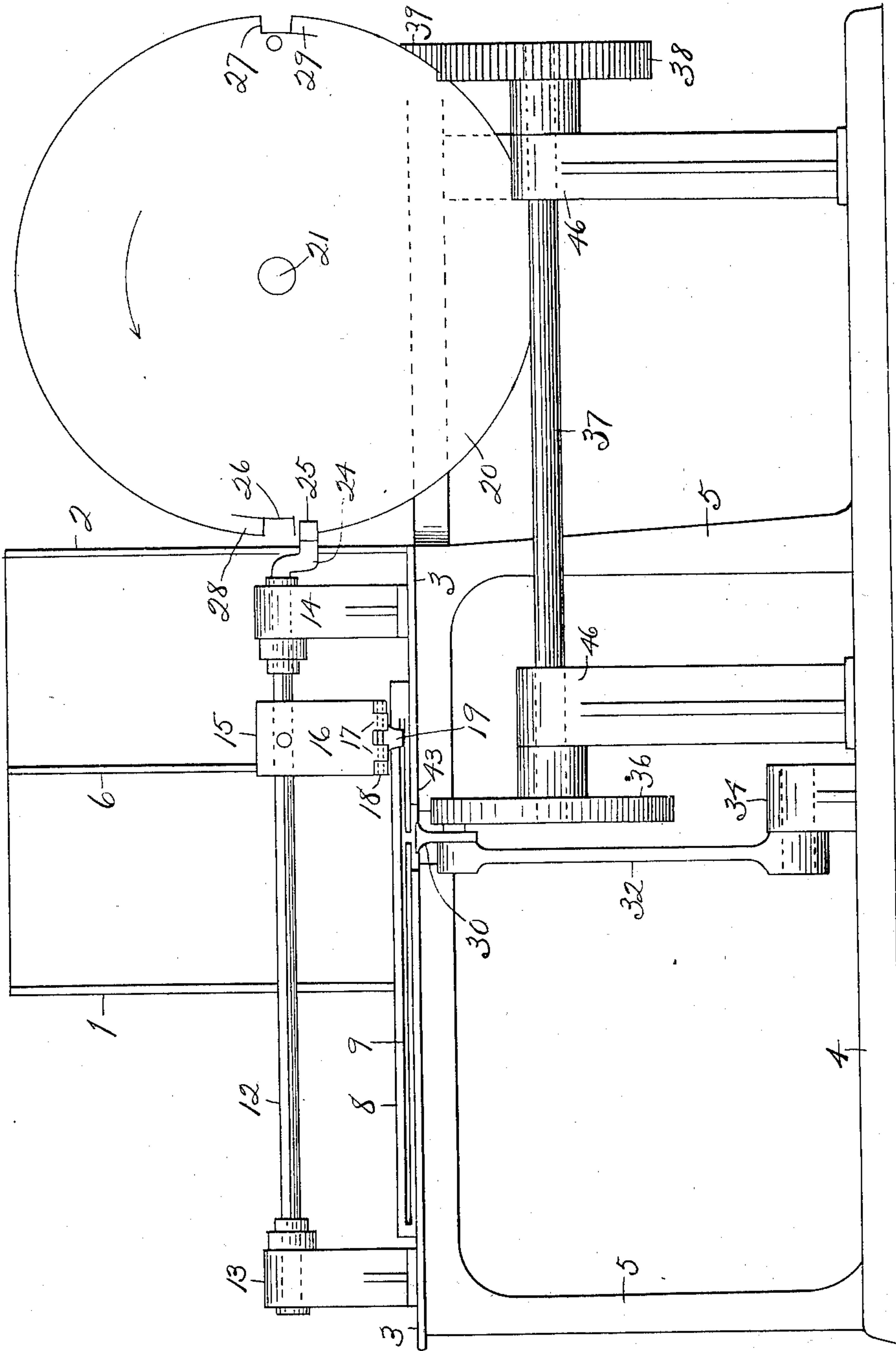


Fig. 2.

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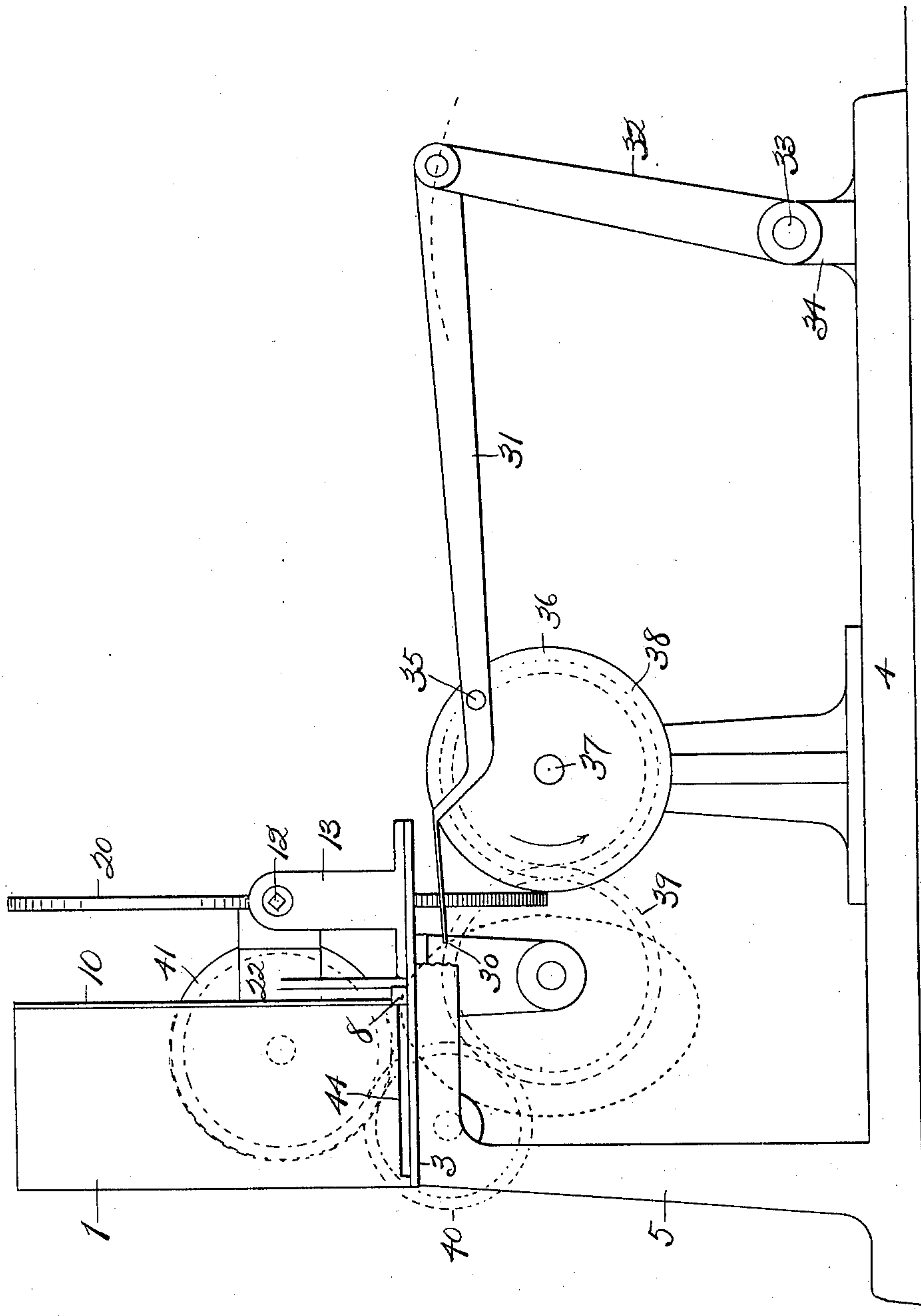


Fig. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL R. HAYDEN, OF KANSAS CITY, MISSOURI, ASSIGNOR OF TWO-THIRDS TO ANTHONY L. CLARK AND CHARLES W. LAKE, OF KANSAS CITY, MISSOURI.

INSERTING-MACHINE FOR NEWSPAPERS.

SPECIFICATION forming part of Letters Patent No. 707,587, dated August 26, 1902.

Application filed February 13, 1902. Serial No. 93,985. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. HAYDEN, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Inserting-Machines for Newspapers, of which the following is a specification.

My invention relates to a machine for automatically assembling newspapers having an unusually large number of sheets.

Newspapers of ordinary size are assembled by the folding devices of the printing-presses now in use; but in the case of an edition of papers of double the usual size one-half of the paper is printed and folded by one press, while the other half is printed and folded by another press. Then the inner half of each paper has to be placed within the corresponding outer half by hand, which requires a large number of operatives and consumes much time. My invention automatically inserts these inner sections of the papers in the outer sections without any handling of the papers except that of placing them in the boxes or magazines.

I will now describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a plan view of a machine embodying my invention, omitting the outline of the bed-plate. Fig. 2 is a front elevation of the machine, omitting the pitman and the front wall of the magazine. Fig. 3 is an end elevation looking toward the right in Fig. 2. Fig. 4 is a diagram showing the relation of the two sections of a paper before the one is inserted in the other. Fig. 5 represents the complete paper after such insertion. Fig. 6 is an edge view of the inserter-blade and the cross-head detached.

The frame of the machine comprises a bed-plate 4, from which rise standards 5, which support a horizontal plate 3. A part of plate 3 forms the bottom of two magazines 1 and 2, which magazines are rectangular boxes having a common central upright partition 6. The dimensions of each magazine 1 2, as seen in Fig. 1, are a little larger than the length and width of a newspaper folded from the

press. The bottom-plate 3 under magazine 1 is cut away, forming an opening 7, the purpose of which will be explained hereinafter. Secured to the bottom of the front of the magazines 1 2 and projecting beyond magazine 1 is a horizontal guide-bar 8, having a longitudinal horizontal slit 9 therein. The front plate 10 extends down to the guide-bar 8, as shown in Fig. 3. Parallel to guide-bar 8 is a rock-shaft 12, supported by bearings 13 14, rising from plate 3. Between said bearings shaft 12 is preferably squared, as shown, or if round it should be provided with a spline-groove. Mounted slidably and non-rotatably on rock-shaft 12 is a cross-head 15, having a depending portion 16, at the bottom of which are hinge-lugs 17. Connected to said hinge-lugs by a pin 18 is a thin horizontal blade 19, called hereinafter the "inserter-blade." This blade extends through a slit 9 in bar 8 and may extend into magazine 2, this depending on the position of rock-shaft 12. A wheel 20 about three feet in diameter is mounted in alinement with rock-shaft 12 on a shaft 21, journaled in a bearing 22. A pitman 23 is connected at one end to the cross-head 15 and at its other end to the front face of wheel 20. Cross-head 15 is reciprocated by the rotation of wheel 20, which is driven by means described hereinafter. In Figs. 1 and 2 the cross-head 15 and hence the inserter-blade 19 are shown at the beginning of their operative stroke, which is to the left. The end of rock-shaft 12 is bent to form a crank 24, having a roller 25 on its end which contacts with wheel 20. Cut in the rim of wheel 20 are two diametrically opposite notches 26 27, provided with inclined lips 28 29, projecting outwardly from the respective faces of the wheel and in the direction of their rotation. The effect of this construction is that the crank 24 is thrown to opposite sides alternately of the wheel 20 by the cam-like action of the lips 28 29. Stops of any suitable kind may be provided to limit the rotation of rock-shaft 12, so as to keep roller 25 against wheel 20, or springs may be employed for the same purpose. The pitman 23 is connected to wheel 20 at such a point that as soon as the cross-head 15 reaches

the position shown in Figs. 1 and 2 cam-lip 28 engages the crank-roller 25 and throws the crank in toward the magazine 2, thereby turning rock-shaft 12, which turns the cross-head 15, which pushes the inserter-blade 17 into magazine 2. The rotation of wheel 20 through pitman 23 next pushes the inserter-blade 19 forward through magazine 1 and farther about sixteen inches till the inserter-blade arrives at the position shown in dotted lines in Fig. 1. The other cam-lip 29 on wheel 20 now throws the crank-roller 25 to the front face of said wheel, which retracts the inserter-blade 19 until only its point or end is supported by the bottom of slit 9. Said blade is now drawn back to its starting position by pitman 23, and it does not project into the magazines 1 2 during this movement.

The mechanism described so far would be sufficient for inserting the papers in magazine 2 into those in magazine 1 were it not for the need of a device for opening or separating the outer sections (in magazine 1) to permit the insertion therein of the sections in magazine 2. The device I employ for effecting said operation consists of an oscillatory finger 30, secured to or integral with a rod 31, connected at its end opposite said finger to a rocker-arm 32, which is mounted on a pin 33, set in a lug 34 on the bed-plate 4. Near the finger 30 the rod 31 is connected by a wrist-pin 35 to a wheel 36, rigidly secured on a rotatable shaft 37 in bearings 46. Rod 31 and finger 30 are set at right angles to the rock-shaft 12 and pointing toward the opening 7 in bottom plate 3 under magazine 1. As shown in Fig. 2, the plate 3 and guide-bar 8 are cut away in the path of finger 30, so that said finger may enter magazine 1 through slit 9 when actuated by rotation of wheel 36. By reference to Fig. 3 it will be seen that the finger 31 will enter magazine 1 in a substantially horizontal direction and will then descend and be withdrawn from beneath the opening 7, and so on up to the position shown in Fig. 3, when wheel 36 is rotated in the direction of the arrow. The path of the end or tip of the finger 30 is shown by dotted line in this figure. On shaft 37 is a gear-wheel 38, which is connected by a train of gears 39, 40, 45, 41, and 42 with shaft 21, on which the main pitman-wheel 20 is mounted. The gears are so proportioned that shaft 37 runs synchronously with shaft 21, whereby the finger 30 makes a stroke preceding every stroke of the inserter-blade 19.

It is not at all necessary that the gearing between shaft 21 and shaft 37 be arranged as shown, and any suitable non-slipping connections between said shafts may be employed. A belt-pulley for driving the entire machine may be placed on either shaft 37 or 21 or elsewhere, as preferred.

The operation of the machine is as follows: Magazine 1 is filled with outside sections or halves of newspapers with their main folds

at the left, as shown in Fig. 4. In magazine 2 are placed the inside halves or sections of the papers with their main folds at the left, as shown in Fig. 4. The slit 9 in guide-bar 8 is placed at such a height that the inserter-blade 19 is caused to enter the bottom inside section between its folds, so that when said blade moves to the left toward magazine 1 it pulls after it the said inside section; but before the inserter-blade passes under the partition 6 the separator-finger 30 has been pushed between the folds of the bottom outside section in magazine 1, and in descending it pushes or turns down the lower flap of said outside section, to permit which is the purpose of the opening 7 in plate 3. The end of the upper flap of the outside section rests on a ledge or shelf 43, formed by plate 3 at the right of opening 7. It will thus be readily understood that the inside section is inserted between the flaps of the outside section, and as the inserter-finger 19 continues its movement some distance past magazine 1 it draws out both sections together—i. e., a complete paper—through a slot 44, cut in the left wall of magazine 1 for this purpose, and is withdrawn from the paper at the end of its stroke by the rocking of rock-shaft 12 by the mechanism described heretofore. The inserter-finger 19 now slides back in slit 9 of bar 8 without touching the papers in the magazines, and the above-described operation is repeated.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for the purpose described, a magazine 1 for inner sections, an adjacent magazine 2 for outer sections, and a reciprocating blade, and means for inserting said blade between the folds of an inner section and then moving said blade so as to insert said inner section between the folds of an outer section, substantially as described.

2. In a machine for the purpose described, a magazine 2 for inner sections, an adjacent magazine 1 for outer sections, a rock-shaft, a cross-head mounted slidably and non-rotatably on said rock-shaft, a horizontal inserter-blade connected pivotally to said cross-head, and means for reciprocating said cross-head and rocking said rock-shaft, whereby said inserter-blade is inserted into said magazine 2 between the folds of an inner section, is then moved into said magazine 1, pulling after it said inner section and inserting it into an outer section, is then withdrawn from said inner section, and is then returned to starting position, ready to be inserted into another inner section, substantially as described.

3. In a machine for the purpose described, a magazine 1 for outer sections, a magazine 2 for inner sections, an oscillating finger for depressing the lower fold of each outer section, a reciprocating blade, and means for inserting said blade between the folds of an inner section and then moving said blade so

as to insert said inner section between the folds of said outer section; substantially as described.

4. In a machine for the purpose described, 5
a magazine 1 for outer sections, a magazine 2
for inner sections, the bottom of said maga-
zine 1 having an opening and a shelf therein,
a guide-bar secured to said magazines as
shown, and having a longitudinal slit therein,
10 a rock-shaft having a crank on one end there-
of, a cross-head mounted slidably and non-
rotatably on said rock-shaft, an inserter-
blade connected pivotally to said cross-head
and projecting into or through said slit in
15 said guide-bar, a wheel, a pair of cam-lips
28, 29, on said wheel, an opening adjacent
to each of said cam-lips, and a pitman con-
nected to said wheel and to said cross-head,
whereby said rock-shaft is rocked and said
20 cross-head is reciprocated, by revolution of
said wheel, substantially as described.

5. In a machine for the purpose described,
a magazine 1 for outer sections, a magazine 2
for inner sections, the bottom of said maga-
zine 1 having an opening and a shelf therein,
25 a guide-bar secured to said magazines as
shown, and having a longitudinal slit therein,
a rock-shaft having a crank on one end there-

of, a cross-head mounted slidably and non-
rotatably on said rock-shaft, an inserter- 30
blade connected pivotally to said cross-head
and projecting into or through said slit in
said guide-bar, a wheel, a pair of cam-lips 28,
29 on said wheel, an opening adjacent to each
of said lips and a pitman connected to said 35
wheel and to said cross-head, whereby said
rock-shaft is rocked and said cross-head is
reciprocated, by revolution of said wheel, a
shaft parallel to said rock-shaft, a crank-
shaft, a crank-wheel on said shaft, a separa- 40
tor-finger connected at one end to a rocker-
arm and between its ends to the face of said
crank-wheel, said separator-finger being so
adjusted as to enter between the folds of an
outer section and depress the lower fold there- 45
of through said opening in the bottom of the
magazine, the end of the upper fold being
supported by said shelf, and means for ro-
tating said crank-wheel and said cam-wheel
synchronously, substantially as described. 50

In testimony whereof I affix my signature
in the presence of two witnesses.

SAMUEL R. HAYDEN.

Witnesses:

M. L. LANGE,

K. M. IMBODEN.