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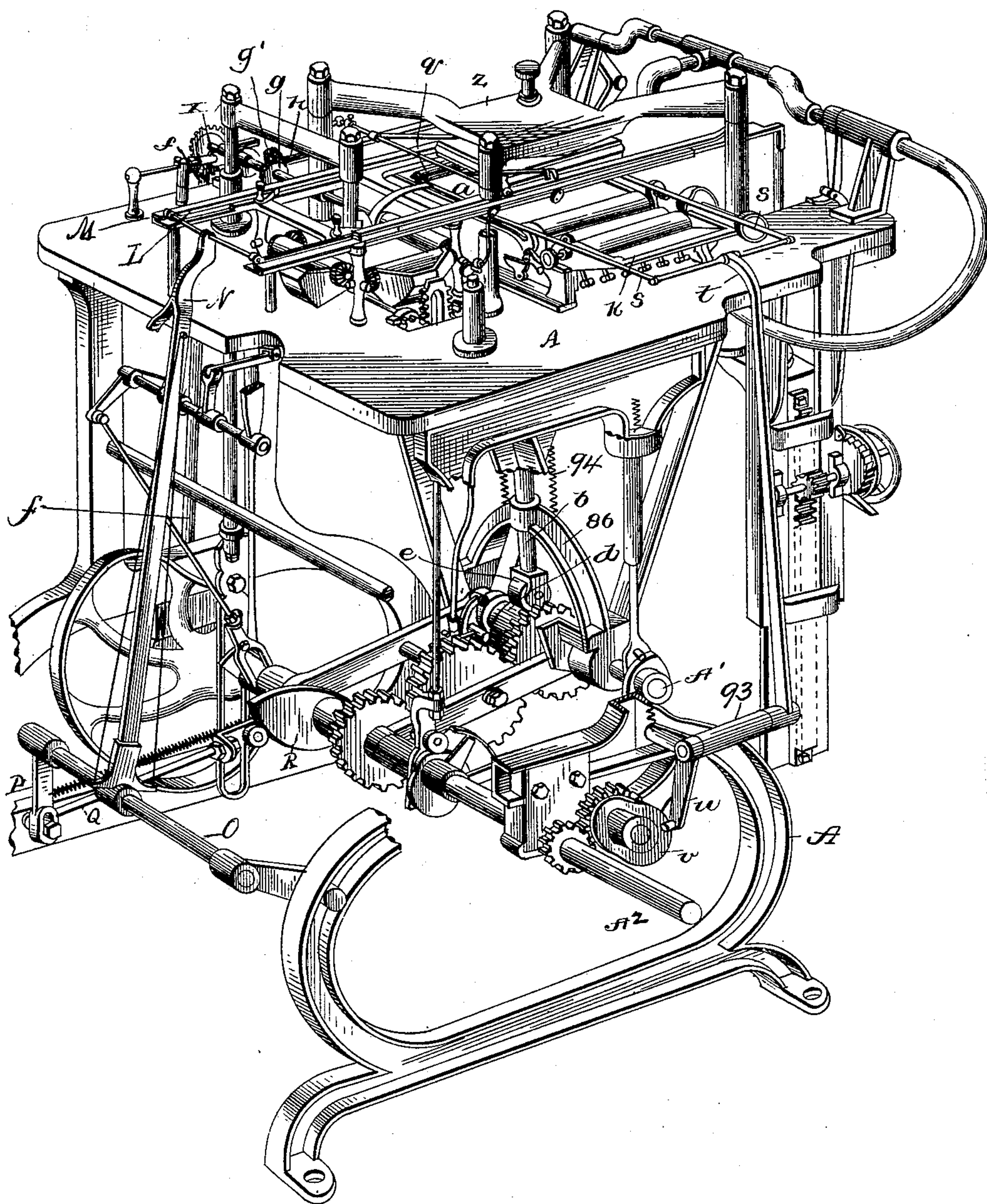
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J. W. HUTT & A. J. PHILLIPS.
PRINTING APPARATUS.

No. 480,467.



Patented Aug. 9, 1892.



Witnesses

John T. Towner
Thos. Robertson

James W. Hutt Inventors
Arthur J. Phillips

By their Attorneys
Donald C. Ridout & Co.

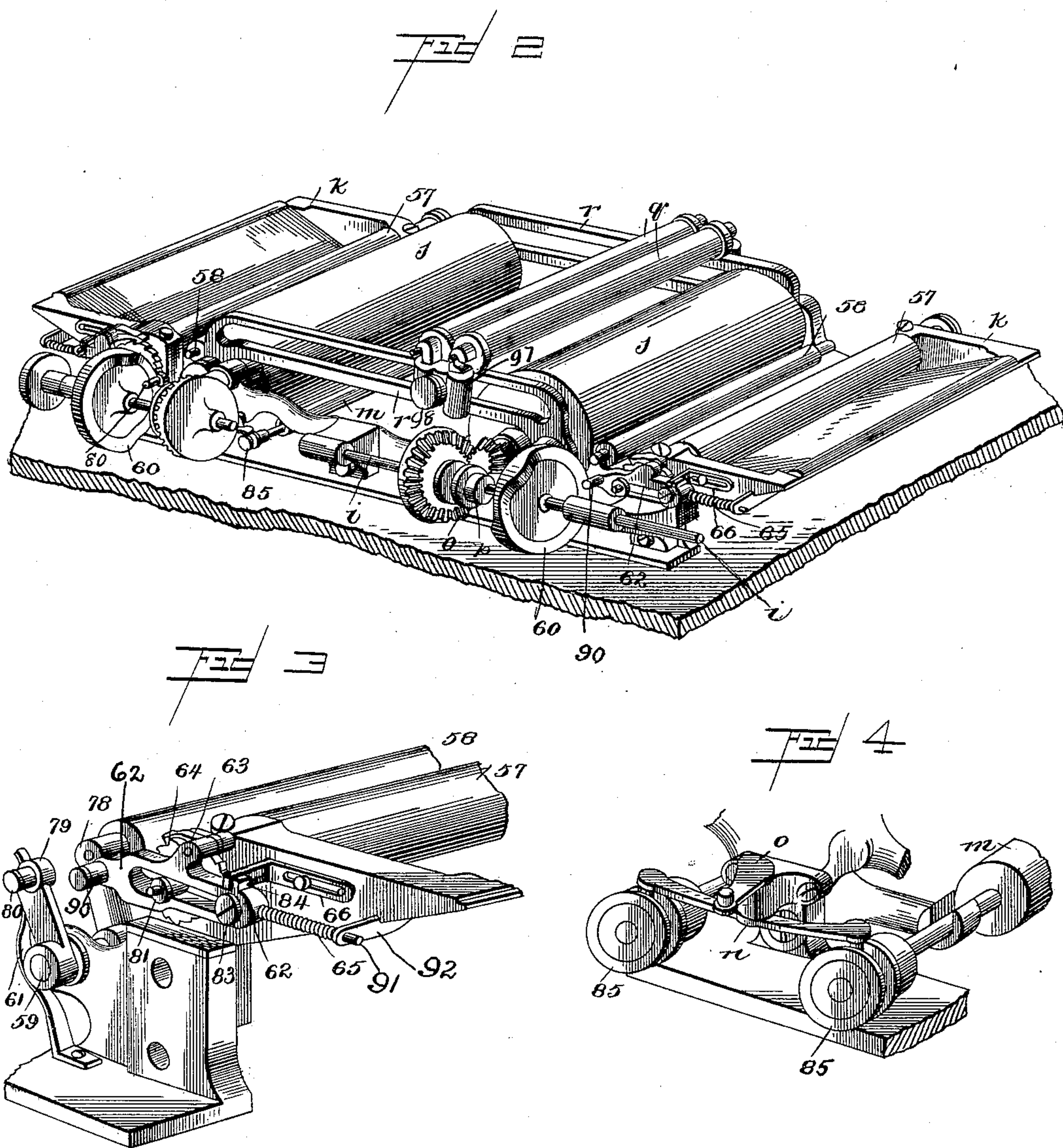
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(No Model.)

4 Sheets—Sheet 3.

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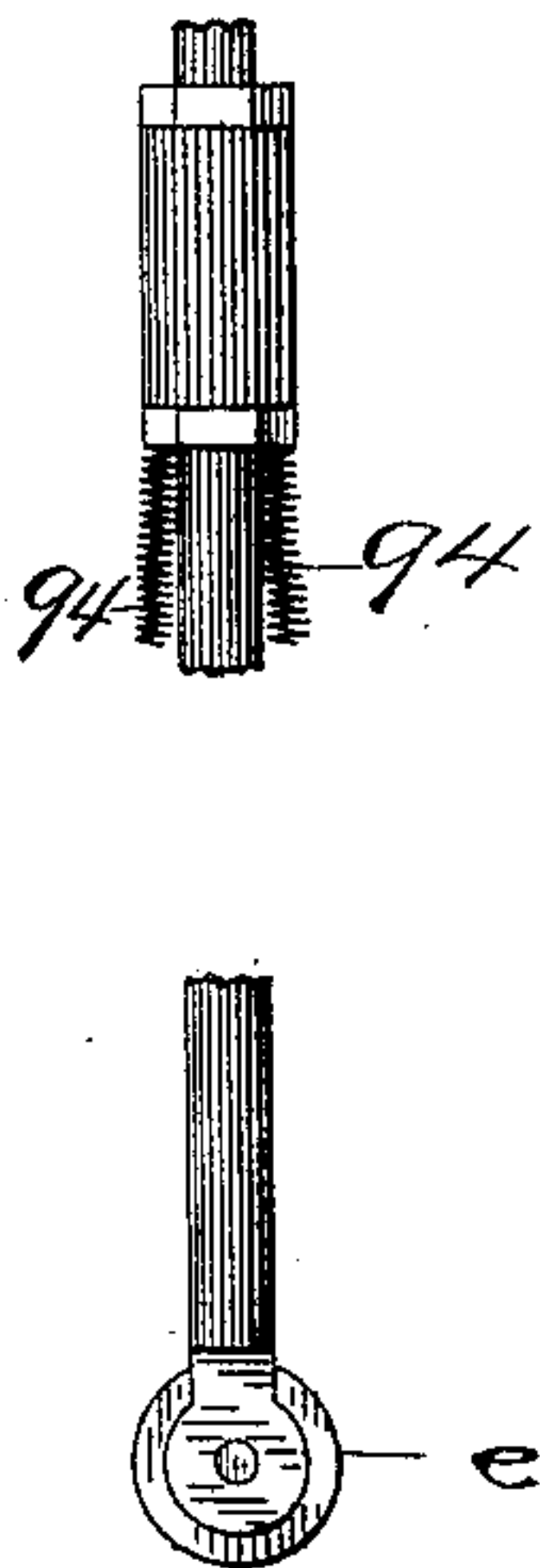
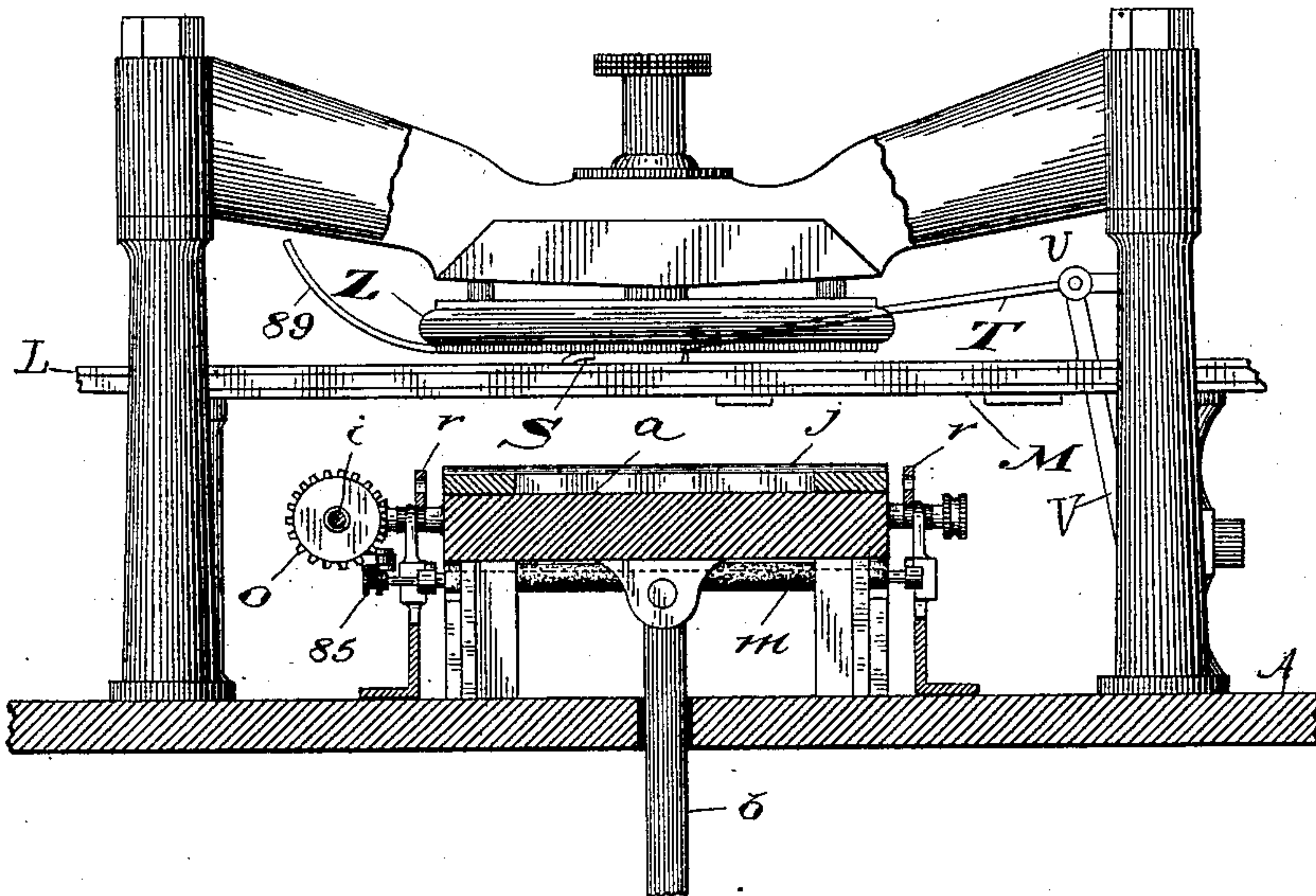
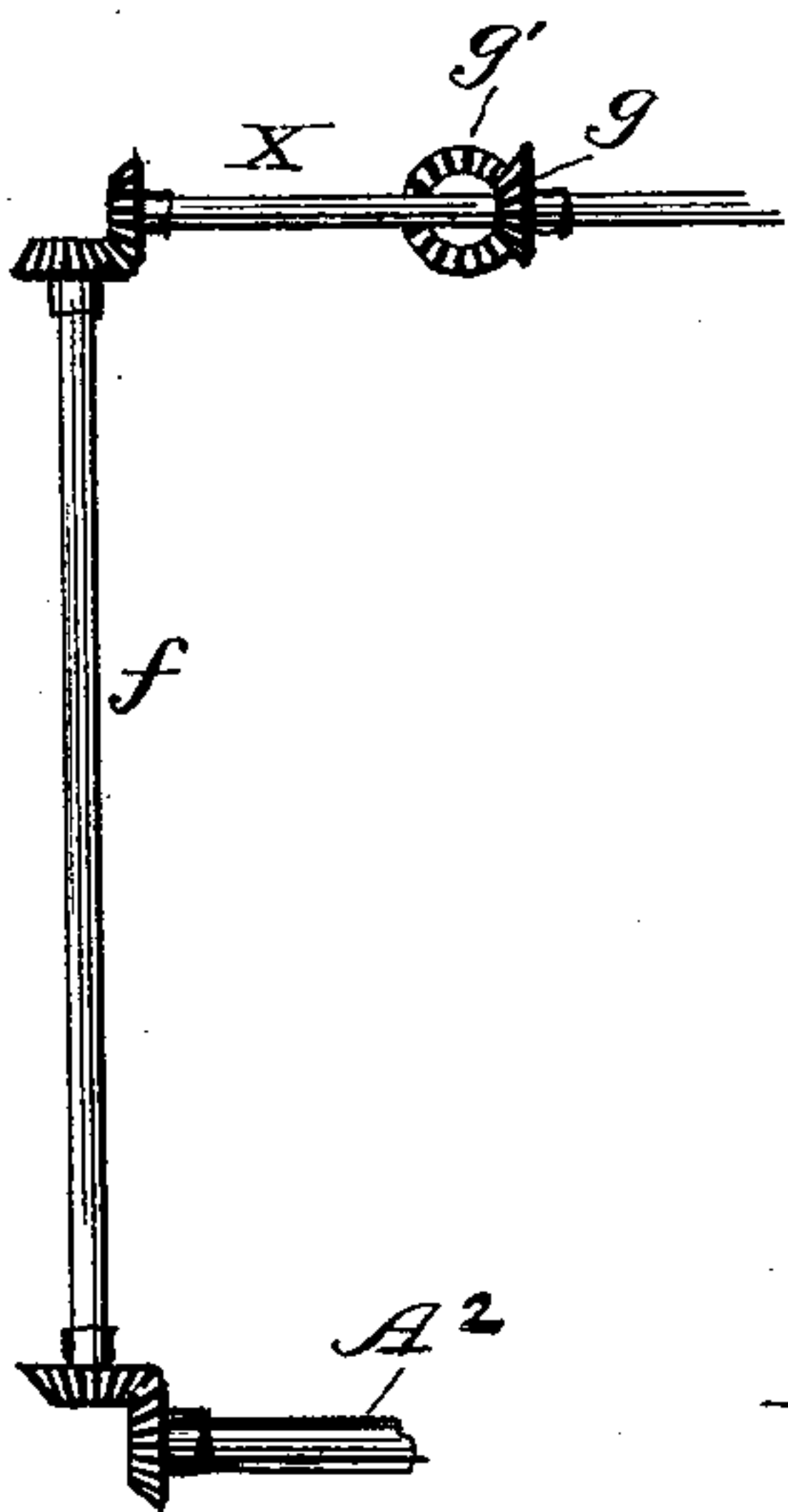


Fig. 5

Fig. 6



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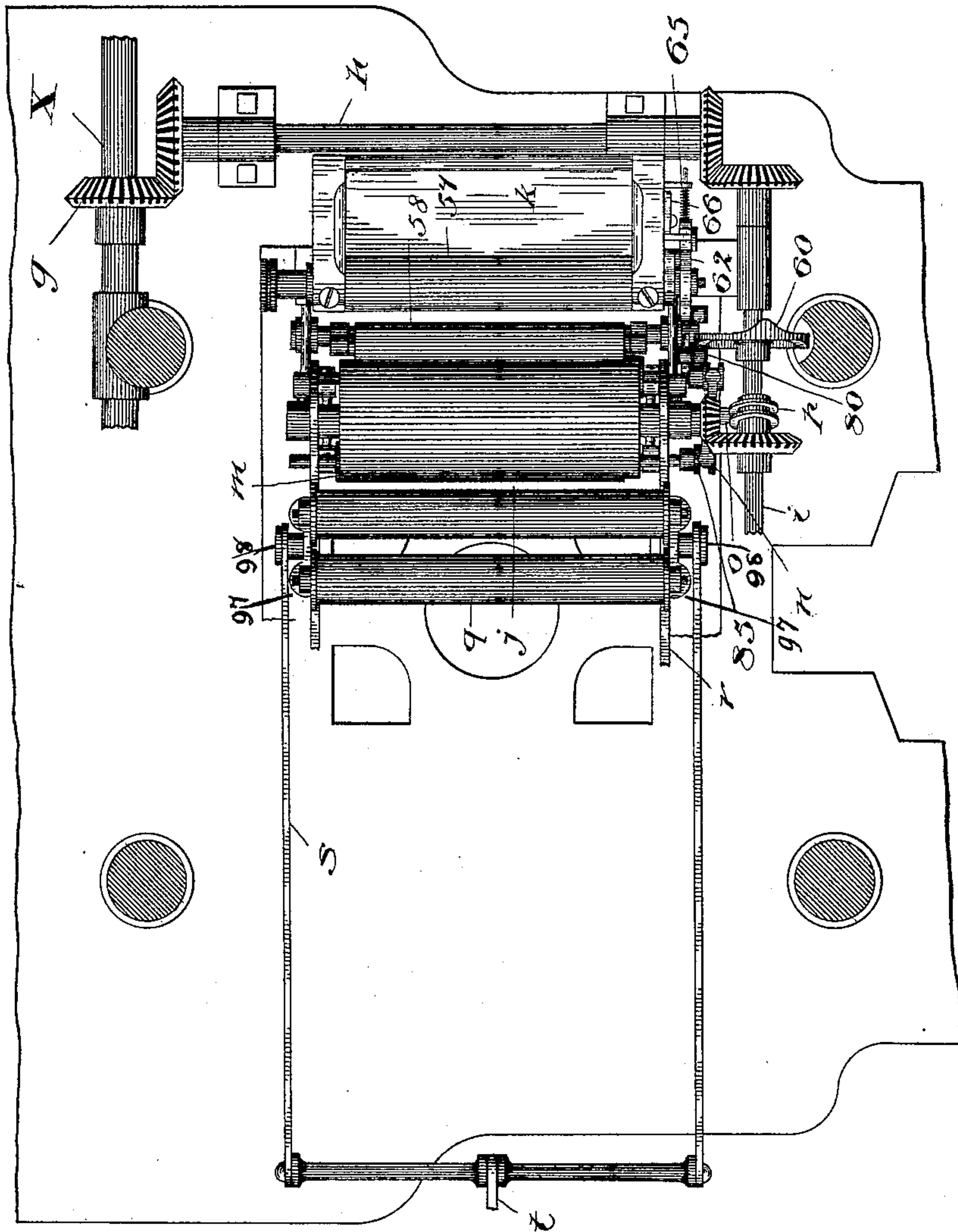
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UNITED STATES PATENT OFFICE.

JAMES W. HUTT AND ARTHUR J. PHILLIPS, OF TORONTO, CANADA.

PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 480,467, dated August 9, 1892.

Original application filed January 2, 1891, Serial No. 376,508. Divided and this application filed August 7, 1891. Serial No. 402,051. (No model.)

To all whom it may concern:

Be it known that we, JAMES WILLIAM HUTT and ARTHUR JAMES PHILLIPS, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have jointly invented a new and Improved Printing Apparatus, of which the following is a specification.

The object of this improvement is to provide a printing apparatus designed, mainly, to be used in our machine for the manufacture of paper boxes, shown in our application filed January 2, 1891, Serial No. 376,508, of which this application is a division; and the invention consists in the peculiar construction, arrangement, and combinations of parts hereinafter more particularly described and then definitely claimed.

In the accompanying drawings, Figure 1 shows a perspective view of a machine for making boxes provided with our printing apparatus. Fig. 2 is a perspective view of the inking apparatus. Figs. 3 and 4 are details of the same on a larger scale. Fig. 5 is a side view of the platen, bed, &c., partly in section. Fig. 6 is a detail showing some of the gearing detached. Fig. 7 is a plan of the inking-rollers and one of the ink-founts and its immediate connections.

In order to better explain our invention, we have shown a general view of the machine in which the same is employed; but as the machine as a whole is not claimed herein, we shall only refer to it briefly and limit the detail description to that part of the apparatus herein claimed.

Our apparatus taken as a whole comprises a device for feeding the blanks, an apparatus to print said blanks, and a box-forming apparatus which makes the blanks into boxes and is provided with an apparatus to form and insert a bail into the boxes as they are made.

In constructing our machine we have endeavored to make the mechanism as simple and effective as possible and have arranged it so that there shall be absolutely no handling from the time the pile of blanks is first placed in the machine until the box or pail is discharged, complete in every respect.

In our machine the pile of blanks is placed on top of an elevator operated by mechanism which will raise the pile, as required, to keep

the top blank in reach of the picker. This picker is designed to raise the top blank and place it upon a carrier so operated by mechanism that the instant the blank is placed upon it it travels to a point where printing mechanism is placed, and which is timed to print and instantly release the blank, so that it may be conveyed by the carrier to a point where a plunger is arranged to instantly come down upon the blank and force it through folding-cams into a position where mechanism is located to form and clamp a wire bail onto the box or pail, which at this period is complete, and is then nested with preceding pails and forced into the discharge-spout.

We have thus given a general idea of our machine as a whole, and will now describe in detail that part of our invention herein claimed.

Z is the platen, held rigidly to the frame A of the machine, as indicated in Fig. 1. Immediately below the platen a type-bed *a* is located on which the type is held. A longitudinally-moving rod *b* is pivoted to the type-bed *a* (see Fig. 5) and after passing through a guiding-bracket 86 rests upon and is supported by the cam *d*, fixed to the shaft A'. The friction-roller *e* is placed on the end of the rod *b*. The mechanism shown and which gives motion to the rod *b* is so timed that at the proper moment when the blank should be printed the type-bed *a* is moved up so as to cause its type to act upon the blanks. The weight of the platen and its connections will sometimes be sufficient to keep the roller *e* in contact with the cam; but to make this sure we provide springs 94, the upper ends of which are connected to the rod *b* and their lower ends to the bracket 86. The shaft X derives its motion from the main shaft A² through the vertical shaft *f*, which is arranged as shown in Fig. 6. A beveled pinion *g* is fixed to the shaft X and meshes with a pinion *g'*, fixed to the shaft *h*, which extends to and is geared with the shaft *i*, which, as shown in Fig. 2, is geared to the inking-rollers *j*. On reference to this figure it will be observed that we have an inking apparatus with a fount *k* at each end. The rollers *m*, which distribute the ink on their ink-roller *j*, derive a longitudinal motion by means of the piv-

oted lever *n*, (see Fig. 4,) the ends of which are provided with pins to fit into the grooved rollers 85, fixed to the spindle of each distributing-roller *m*. The pivot-pin of this lever has a crank *o* fixed to it, which crank is connected to and operated by the cam *p*, which is fixed to and revolves with the shaft *i*.

The ink is conveyed from the fount-rollers 57 to the rollers *j* by the rollers 58. Each end of the rollers 58 is journaled on a crank-arm 78 on the shaft 59. At one end the shaft 59 projects and has fixed to it the crank-arm 79, having a projecting friction-roller 80, (see Figs. 3 and 7,) designed to engage with the cam-disk 60, which in revolving carries the arm 79 over so as to move the roller 58 from the roller 57 to the roller *j*, while the spring 61 moves it back. The other side of the cam 60 engages with a friction-roller 90, projecting from the slide 62, which is supported on a stud 83 and the projecting end 81 of the spindle of the roller 57 on which a ratchet-wheel 64 is fixed. A pawl 63 is pivoted on the slide 62 and engages with the ratchet-wheel 64. As the cam-disk 60 revolves it pushes the slide 62 against the spring 65, which spring is supported on a rod 91, running in a bracket 92, and pushes the slide back as the formation of the cam-disk 60 permits. As the pawl 63 engages with the ratchet 64, the said ratchet-wheel 64 must revolve, causing the fount-roller 57 to gather ink from the fount *k*. The mechanism is timed so that the roller 57 is revolving when the roller 58 comes in contact with it. As the distance which the roller 57 revolves depends upon the number of teeth which the pawl 63 passes over, and as this is regulated by the length of the travel of the slide 62 we provide an adjustable stop 66, which comes in contact with a projection 84 on the slide 62, thus limiting the backward motion thereof, so that the cam-disk 60 shall have more or less effect on the slide 62, as may be desired. In this way the quantity of ink to be gathered by the roller 57 may be regulated.

The rollers *q*, which distribute the ink over the face of the type, are suitably supported on bearings in the slide 97, as indicated in Fig. 2, by the guide-bars *r*, and are operated by rods *s*, (see Figs. 1 and 7,) which are pivotally connected at one end to the studs 98 on the slide 97 and at the other end to the rocking arm *t*, which is supported in a suitable bearing 93, formed on the frame of the machine, as indicated in Fig. 1, and has a crank *u* fixed to it, which crank is designed to engage with the cam *v*, which is geared to and operated by the shaft *A*², as indicated in Fig. 1, and is so shaped that it will impart the necessary rocking movement to the rocking arm *t*, as is required to cause the rollers *q* to travel backward and forward at the proper intervals across the face of the type supported on the bed *a*, taking ink first from one roller *j* and then from the other, moving only once for each impression.

With the view of preventing the blank being carried against the platen *Z*, we provide a curved guard 89, which directs below said platen any blank which might accidentally be raised too high. In connection with this apparatus we use a carrier *L*, which carries the blank under the platen, and which carrier is operated by the lever *N*, carried by the rock-shaft *O*, and operated by a cam *R*, which gives it motion through the arm *P* and rod *Q*. The carrier is provided with a hook *S*, that holds the blank in position thereon. At *l* is shown a finger, also used for holding the blank in place, which finger extends from a rock-shaft *U* and is operated from the main shaft by a cam through the lever *V*. As all of the devices described in this paragraph relate more particularly to the feeding mechanism claimed in our application, Serial No. 402,050, and are not claimed herein, a further description of these parts is unnecessary.

No claim is herein made to the box-making apparatus proper nor to the feeding devices, as the former is claimed in our application, Serial No. 376,508, before referred to, and the latter is claimed in another application, filed August 7, 1891, Serial No. 402,050.

What we claim as new is—

1. The shaft *X*, geared to the vertical shaft *f*, which derives its motion from the main shaft *A*, and a shaft *h*, geared to the shaft *X* and to the shaft *i*, in combination with the fount-roller 57, the inking-rollers *J*, geared to and deriving motion from the shaft *i*, and a cam-disk 60, fixed to the shaft *i* and operating the roller 58, substantially as and for the purpose specified.

2. The roller 58, journaled at each end on a crank-arm 78, and the crank-arm 79, fixed to the shaft of the crank-arm 78 and having a projecting friction-roller 80, in combination with the revolving cam 60 and spring 61, substantially as and for the purpose specified.

3. A ratchet-wheel 64, fixed to the spindle 81 of the roller 57, and a pawl 63, pivoted on the slide 62 and engaging with the ratchet-wheel 64, in combination with the cam-disk 60 and spring 65, arranged substantially as and for the purpose specified.

4. The combination, with the roller 57, ratchet-wheel 64 on the shaft of said roller 57, the slide 62, carrying a pawl, the spring 65, and means for giving said slide motion in opposition to the spring, of an adjustable stop 66, arranged and operating substantially as described.

5. The combination, with the platen *Z* and means for feeding the blanks under the same, of an upwardly-curved guard 89, arranged substantially as and for the purposes specified.

Toronto, July 22, 1891.

JAMES W. HUTT.

ARTHUR J. PHILLIPS.

In presence of—

A. M. NEFF,

T. E. ROBERTSON.