

No. 795,924.

PATENTED AUG. 1, 1905.

T. M. NORTH.

PRESS FOR PRINTING LITHOGRAPHIC AND SIMILAR TRANSFERS.

APPLICATION FILED OCT. 13, 1904.

5 SHEETS—SHEET 1.

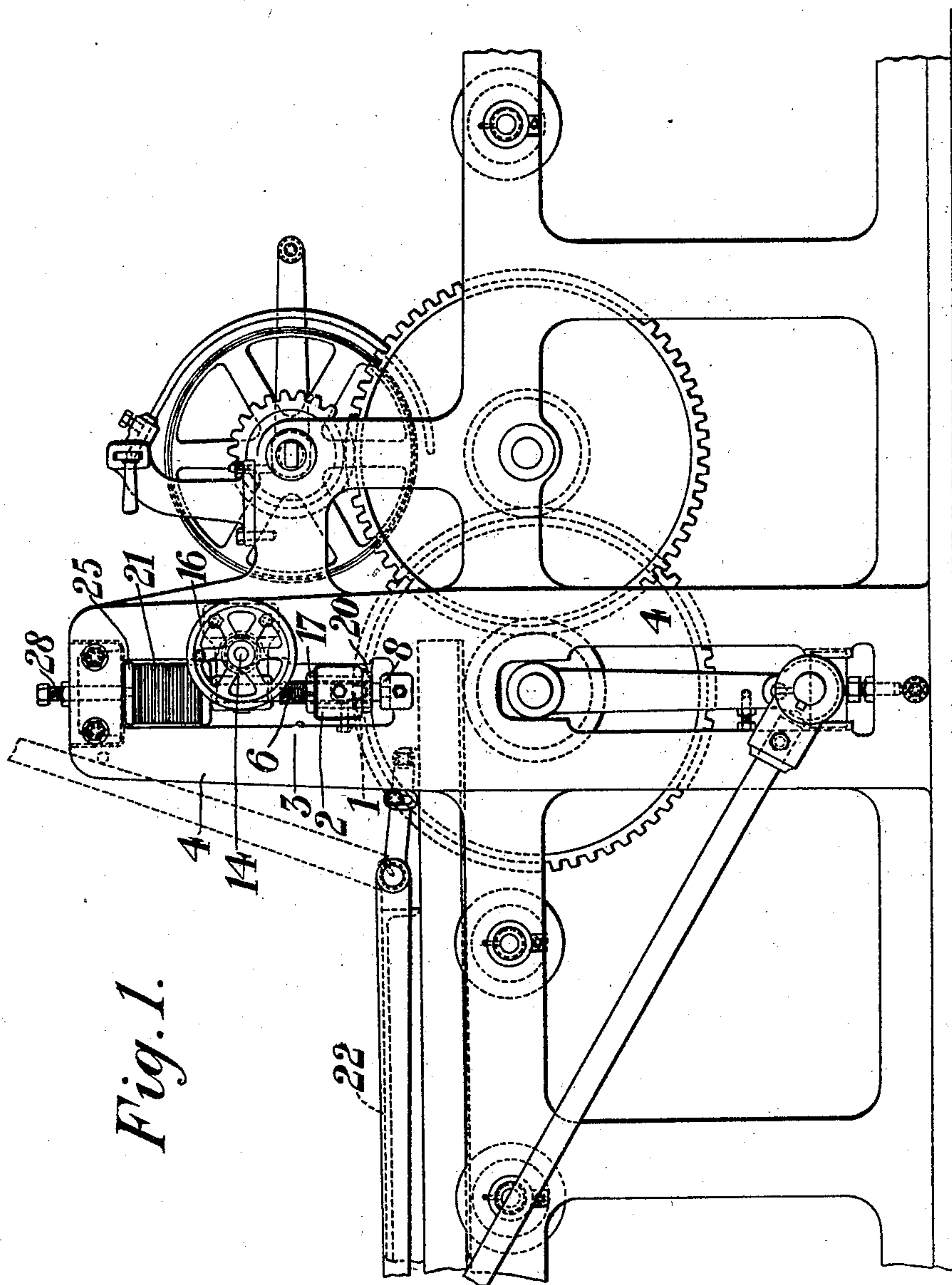


Fig. 1.

Witnesses
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Thomas Merrifield North
Inventor

per Charles S. Woodroffe
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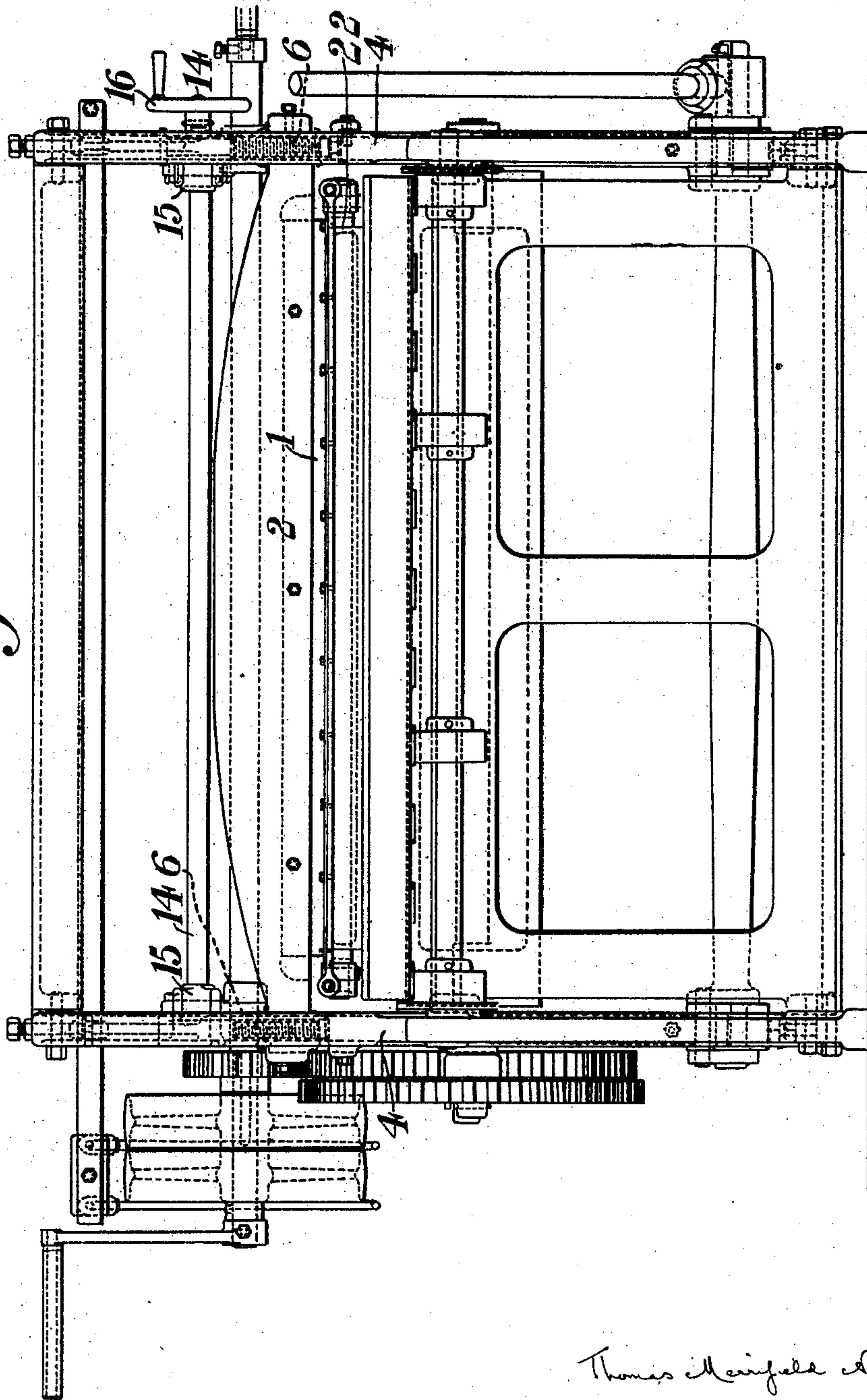
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5 SHEETS—SHEET 2.

Fig. 2.



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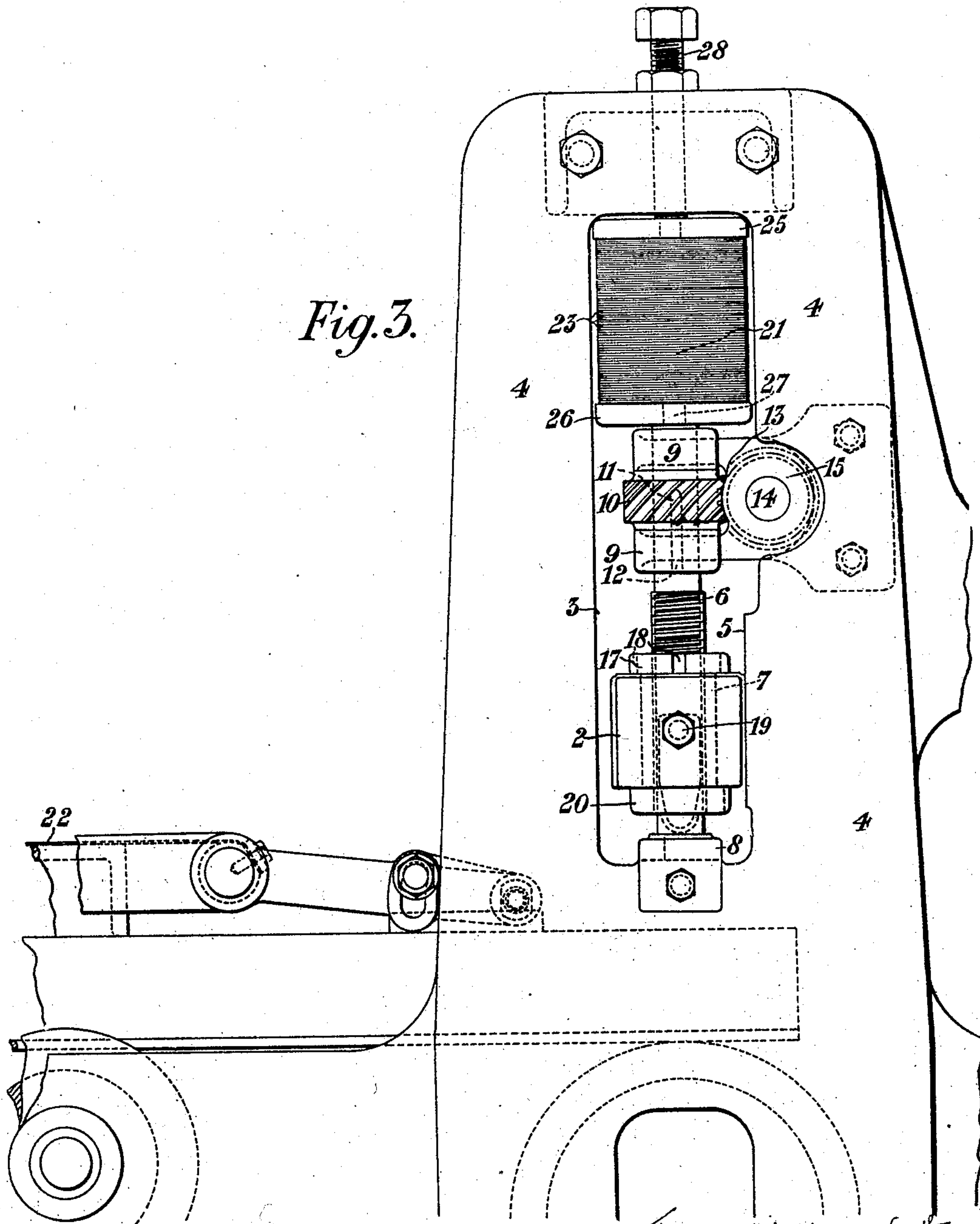
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5 SHEETS—SHEET 3.

Fig. 3.



Witnesses
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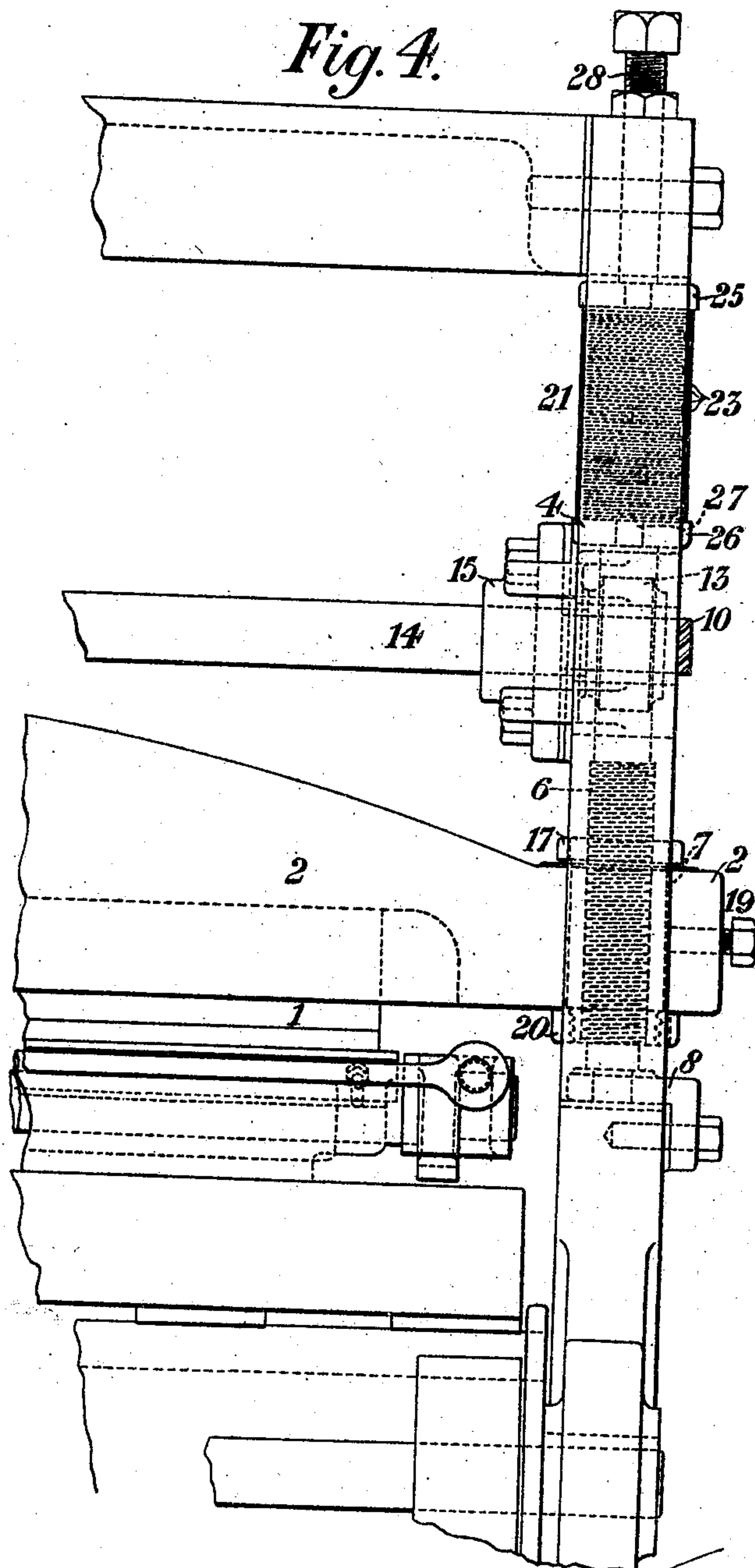
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5 SHEETS—SHEET 4.



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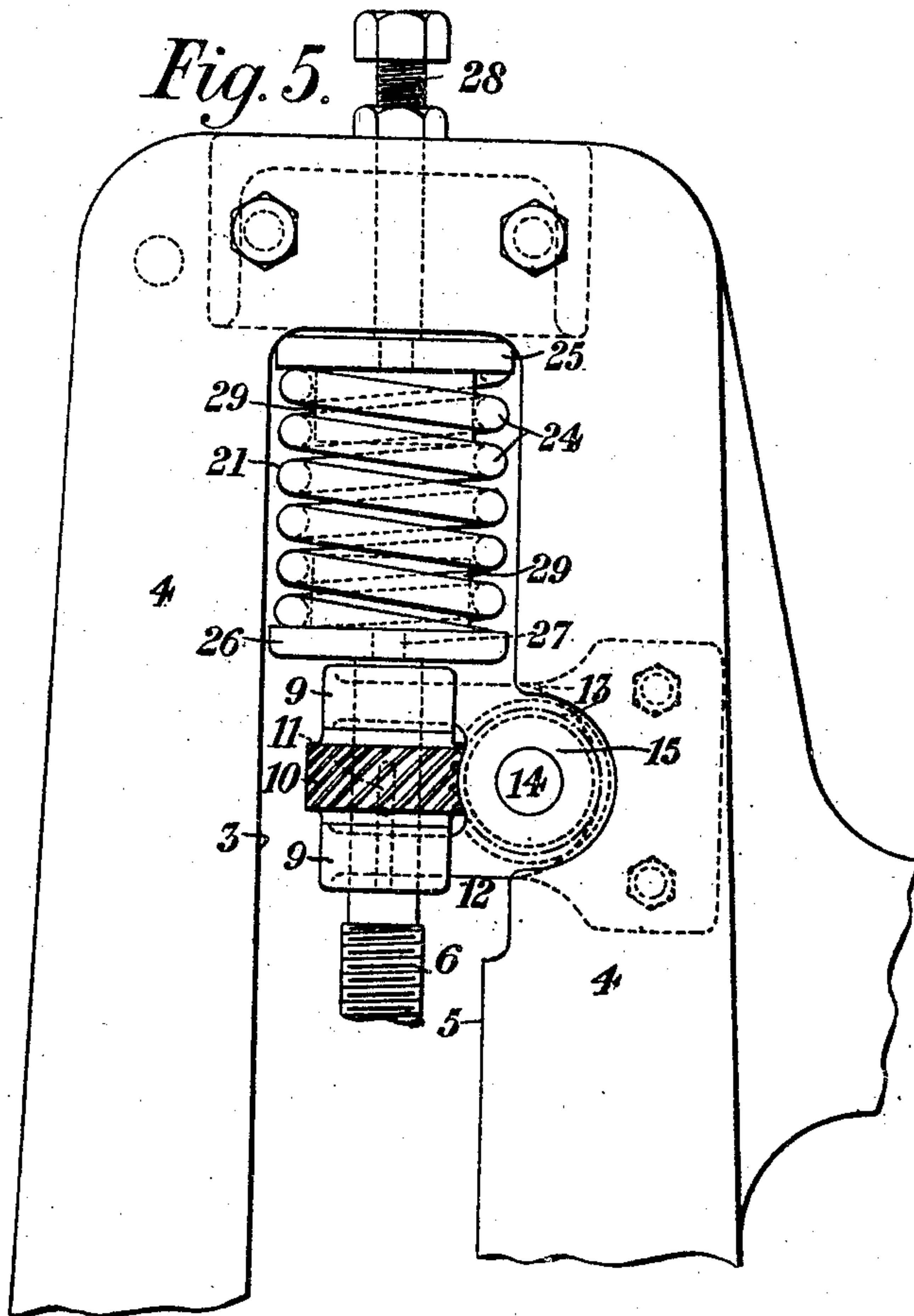
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APPLICATION FILED OCT. 13, 1904.

5 SHEETS—SHEET 5.



Witnesses
W. S. Adams.
Henry Hart.

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UNITED STATES PATENT OFFICE.

THOMAS MERRIFIELD NORTH, OF ALTRINCHAM, ENGLAND, ASSIGNOR TO
LINOTYPE AND MACHINERY, LIMITED, OF LONDON, ENGLAND.

PRESS FOR PRINTING LITHOGRAPHIC AND SIMILAR TRANSFERS.

No. 795,924.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed October 13, 1904. Serial No. 228,347.

To all whom it may concern:

Be it known that I, THOMAS MERRIFIELD NORTH, of Kingswood Lodge, Ellesmere Road, Altrincham, in the county of Chester, England, have invented certain new and useful Improvements in Presses for Printing Lithographic and Similar Transfers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in presses for printing lithographic and similar transfers; and it consists in the combination of improved means by which the pressure that is necessary to the proper working of the so-called "scraper" can be exerted on its ends from both sides of the machine simultaneously and equally instead of at the center, with improved means by which the pressure at either end can be regulated exactly as may be required at that end independently of the pressure obtaining at the opposite end.

The frame of the press consists of two side frames and two end frames securely bolted and braced together, as is usual in printing-presses. The bed travels over a series of supporting-rollers and is driven by a single roller situated with its axis in the plane of vertical pressure. The driving-gear is of the usual combined power and manual type.

The nature of the invention being as stated above, it is obvious that numerous combinations of mechanism each embodying the invention are possible. Obviously, therefore, the nature of the invention imposes no limit in respect of the particular combination employed. The one hereinafter described is to be taken as typical and also as the preferred one.

In the accompanying drawings, which are to be taken as part of this specification and read therewith, Figure 1 is a side elevation of part of an improved printing-press embodying my invention. Fig. 2 is an end elevation of the same as seen from the left of Fig. 1. Fig. 3 is an enlarged view of part of Fig. 1. Fig. 4 is an end elevation of Fig. 3 as seen from the left of that figure; and Fig. 5 is a view corresponding to a portion of Fig. 3; but showing an alternative arrangement of cushioning device.

The before-mentioned scraper 1 consists, preferably, of a strip or bar of hardwood

fixed in a metal holder 2, extending across the machine and the ends of which project into vertical openings 3 in the side frames 4. These openings 3 are of proper length and width to allow of the vertical adjustment and motion of the scraper 1 in both directions, and at one side of each such opening is provided a vertical surface 5, which serves to support the scraper against the lateral strain to which it is exposed during the printing or transferring operation.

The scraper 1 is adjusted vertically by a screw 6 engaging with a nut 7, mounted in each end of the holder 2, the said screw turning at its lower end in a fixed bracket-bearing 8 and at its upper end in a fixed forked bearing 9. Between the two arms of each forked bearing 9 is provided a skew-gear 10, connected to the appropriate screw 6 by a feather 11 on the said gear engaging a groove 12 in the shaft of the said screw, this arrangement admitting of the screws moving in the direction of their axes independently of the skew-gears 10. The two gears 10 are each geared with a skew-gear 13, fast on a horizontal shaft 14, extending across the machine and supported in suitable bearings 15, which, as shown in the drawings, may conveniently be formed as integral parts of the before-mentioned forked bearings 9. On one end of the horizontal shaft 14 is secured a hand-wheel 16, whereby the said shaft and the screws 6 may be rotated in either direction, according to whether it is required to raise or lower the scraper 1.

Each nut 7 is arranged so that it may be turned about its vertical axis for raising and lowering either end of the scraper independently of the other end thereof, the upper flanged end 17 of the said nut for this purpose being provided with recesses 18 or otherwise formed to enable a spanner or wrench to be engaged therewith. Except when the nuts 7 are to be rotated, as last described, they are maintained rigid in the holder 2 by bolts or pinching-screws 19. Vertical movement of the nuts 7 independent of the holder 2 is prevented in one direction by the before-mentioned flanges 17 and in the other direction by nuts 20, screwed on the lower reduced ends of the said nuts 7.

A cushioning device 21 is inserted between the top end of each screw 6 and the upper end of the respective slot 3 for relieving the scraper 1 whenever excessive pressure is

brought to bear upon it by the stone or printing-surface 22 as the latter passes under it. This device may take either the form shown in Figs. 1, 3, and 4, wherein for its resilience it relies on a pile or column of superposed sheets 23, of paper, cardboard, blotting-paper, india-rubber, or the like, or the form shown in Fig. 5, wherein a helical spring 24 is provided for the purpose. In either case the resilient body 23 or 24 is sandwiched between a top plate 25 and a bottom plate 26, the latter of which receives the upper reduced end 27 of the screw 6, while the top plate 25 receives the lower reduced end of a set-screw 28, which is capable of being adjusted in the top of the frame 4 for increasing or decreasing the pressure exerted by the scraper 1 on the printing-surface 22. When springs 24 are provided, as in Fig. 5, these are maintained in their proper positions by bosses 29, formed on the plates 25 26, entering the ends of the said springs.

When the scraper 1 is exposed to excessive pressure, the elasticity of the cushioning device 23, Figs. 1, 3, and 4, or 24, Fig. 5, allows the said scraper to yield, and thereby prevents damage to the stone or printing-surface, the screws 6 during such movement sliding axially through the skew-gears 10.

By applying pressure to the two ends of the scraper 1 instead of at only one part as heretofore the pressure is more satisfactorily distributed and the danger of damage to the printing-surface is thereby reduced, and, moreover, the independent adjustability of the nuts 7 enables the scraper to be very readily adjusted to suit stones having tapering cross-sections.

In respects other than those previously described the press illustrated may be of ordinary construction.

I claim—

1. The combination of a scraper adapted to exert pressure on the printing-surface of a lithographic machine, a screw-threaded nut carried by each end of the scraper, a vertical screw engaging in the said nut and having one end turning in a suitable bearing, a side frame slotted to serve as a guide for the nut and providing the said bearing for the screw, a skew-gear connected to each screw by a feather and groove, manual gearing for working both skew-gears together, a cushioning

device consisting of a resilient body between two plates, arranged between the top of each screw and the closed top of the respective slot, the said two plates, the bottom plate furnishing the bearing for the top end of the respective screw, and an adjusting-screw axially aligned with the respective vertical screw and turning in the top of the side frame and engaging with the top plate to adjust the resilience of the cushioning device.

2. In a press for printing lithographic and similar transfers, the combination of a scraper adapted to exert pressure on the printing-surface, a nut rotatably connected with each end of the scraper, means for securing the nuts against rotation, and releasing them to allow of their rotation, a screw engaging with each nut, a shaft for simultaneously operating both screws and gearing connecting the said shaft with the screws.

3. In a press for printing lithographic and similar transfers, the combination of a scraper adapted to exert pressure on the printing-surface, a nut rotatably connected with each end of the scraper, means for securing the nuts against rotation, and releasing them to allow of their rotation, a screw engaging with each nut, a gear-wheel on each screw, a feather-and-groove device connecting each such gear-wheel with its screw, and gearing engaging the said gear-wheels for simultaneously operating both screws.

4. In a press for printing lithographic and similar transfers, the combination of a scraper adapted to exert pressure on the printing-surface, frames having vertical slots for guiding the ends of the scraper, a nut rotatably connected with each end of the scraper, means for securing the nuts against rotation, and releasing them to allow of their rotation, a screw engaging with each nut, a gear-wheel on each screw, a feather-and-groove device connecting each such gear with its screw, gearing engaging the said gear-wheels for simultaneously operating both screws, and a cushioning device interposed between the end of each screw and the respective slot.

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

THOMAS MERRIFIELD NORTH.

Witnesses:

T. R. G. PARKER,
J. KELLY.