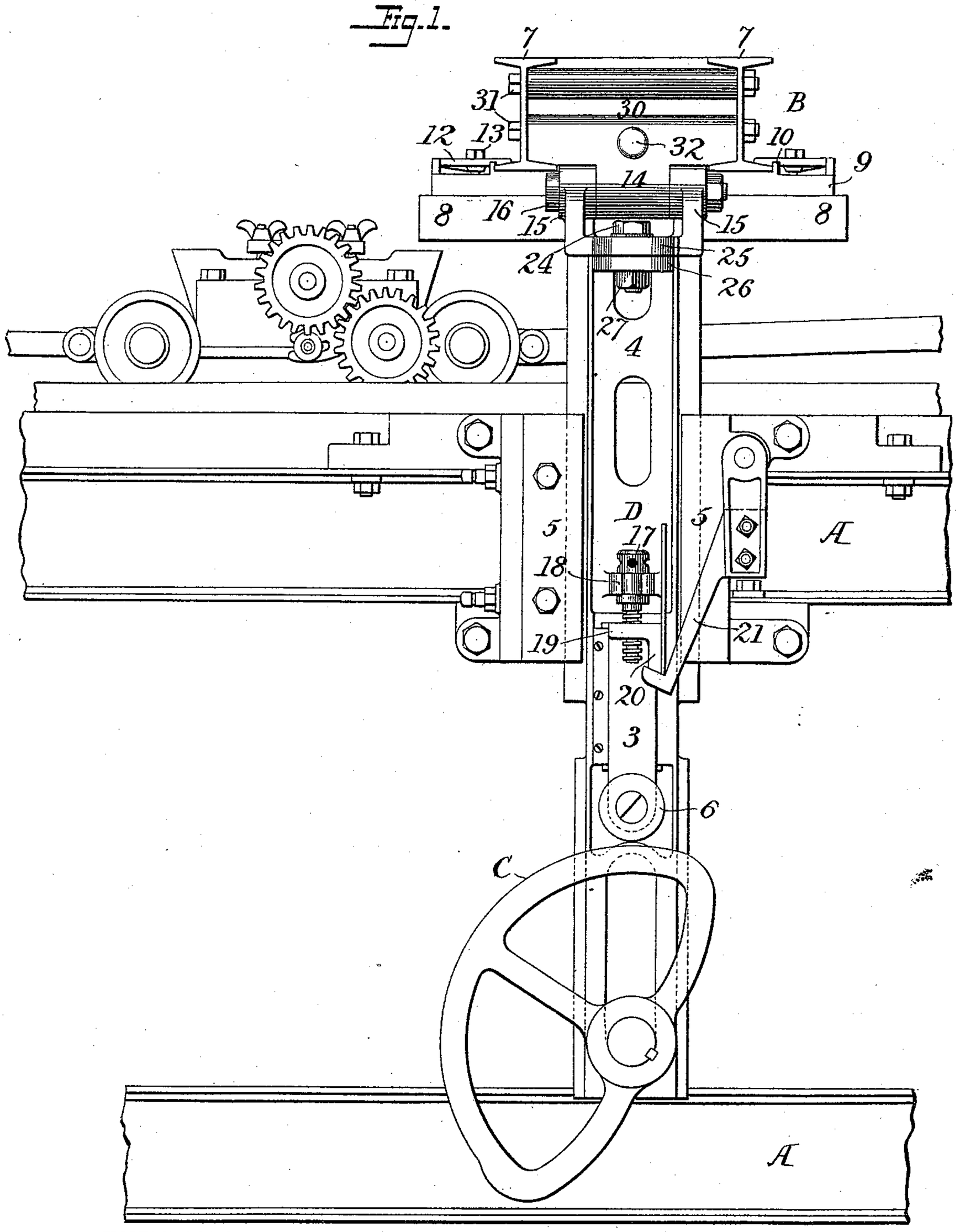
(No Model.) 3 Sheets—Sheet 1.

G. F. EISENHARDT.

OIL CLOTH PRINTING MACHINE.

No. 492,902. Patented Mar. 7, 1893.

Fig. 1.



WITNESSES

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

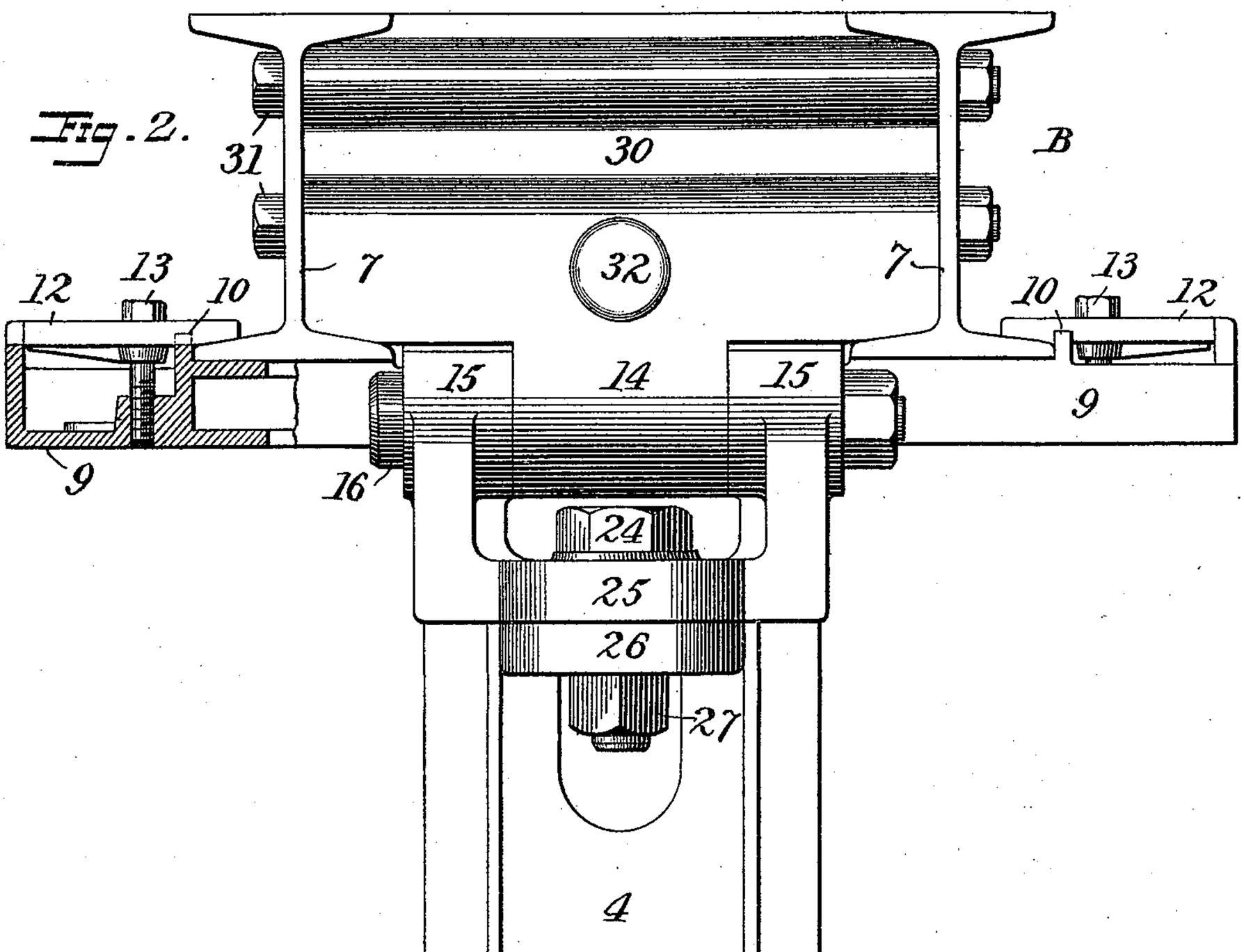


Fig. 4.

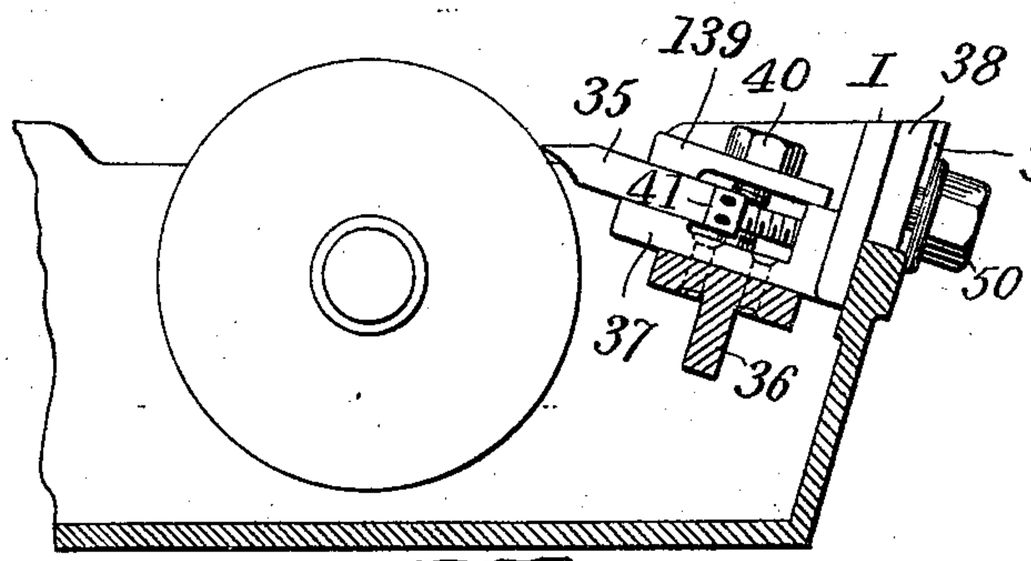


Fig. 5.

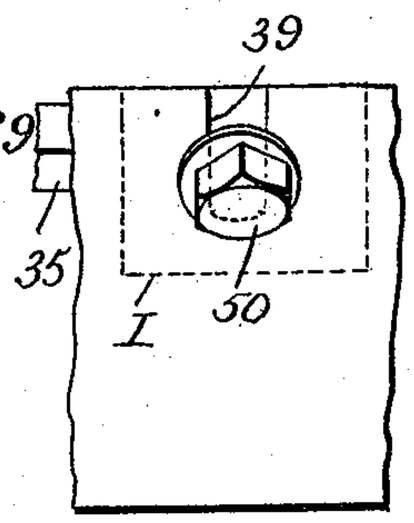
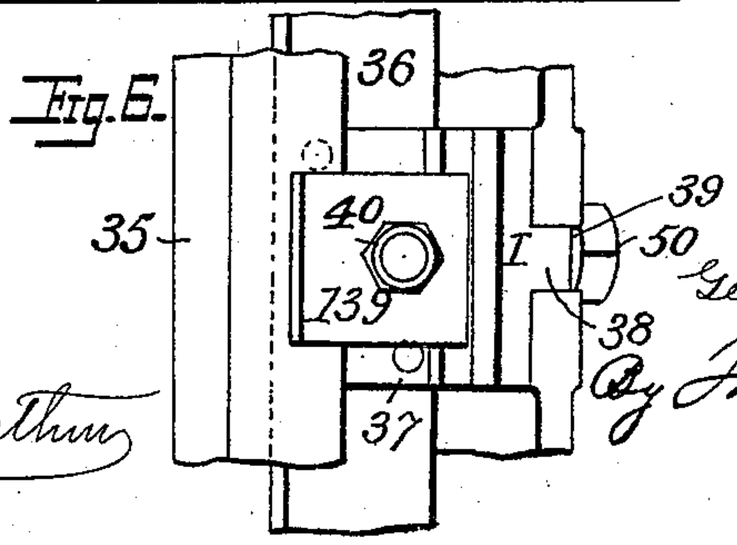


Fig. 6.



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(No Model.) 3 Sheets—Sheet 3.

G. F. EISENHARDT.

OIL CLOTH PRINTING MACHINE.

No. 492,902. Patented Mar. 7, 1893.

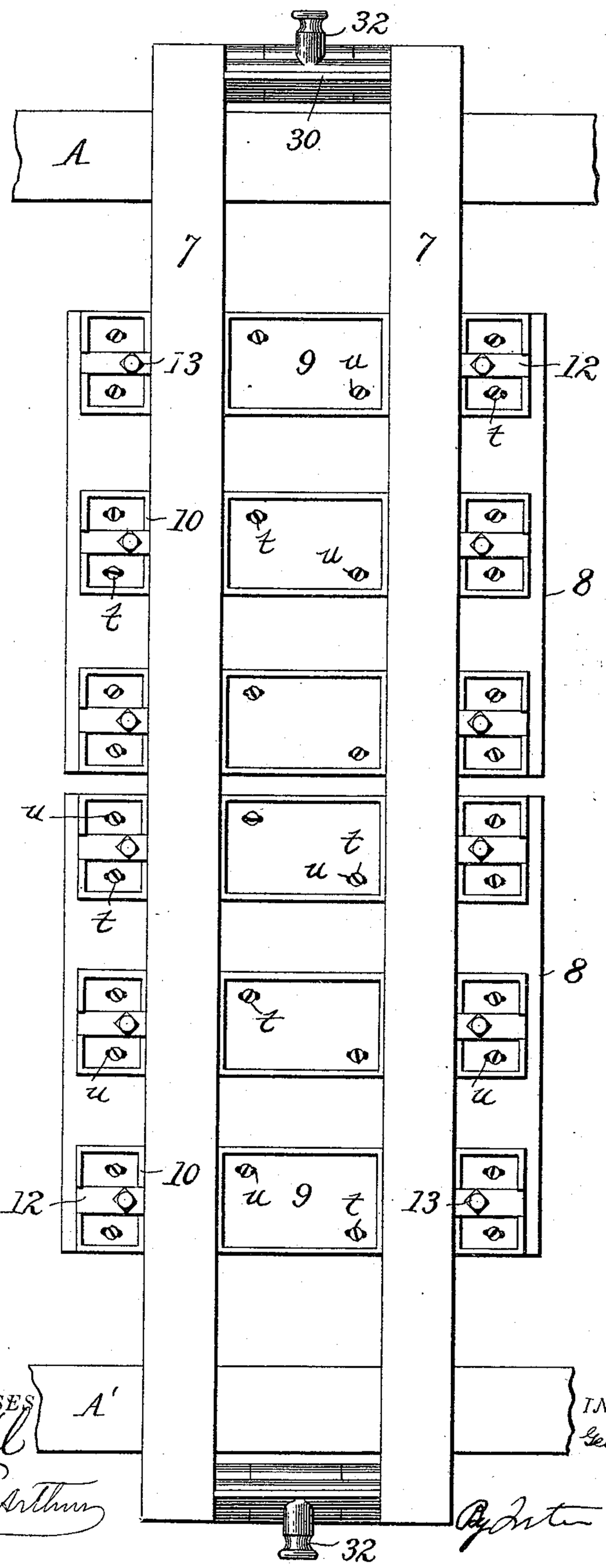

Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE F. EISENHARDT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO DIENELT & EISENHARDT, OF SAME PLACE.

OIL-CLOTH-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 492,902, dated March 7, 1892.

Application filed June 1, 1891. Serial No. 394,736. (No model.) Patented in England February 6, 1892, No. 2,316; in Belgium May 31, 1892, No. 99,630, and in Canada October 15, 1892, No. 40,723.

To all whom it may concern:

Be it known that I, GEORGE F. EISENHARDT, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Oil-Cloth-Printing Machines, of which the following is a specification.

My invention, for which Letters Patent have been obtained in Great Britain, February 6, 1892, No. 2,316, in Belgium, May 31, 1892, No. 99,630, and in Canada, October 15, 1892, No. 40,723, relates to that class of printing machines principally employed for printing fabrics of extended width, such as oil-cloth; and my invention consists in certain details of improvement in said machines fully set forth hereinafter and illustrated in the accompanying drawings, in which:

Figure 1, is a side elevation of part of an oil-cloth printing machine embodying my improvement. Fig. 2, is an enlarged end elevation of the printing block frame and adjuncts. Fig. 3, is a plan of the printing block frame. Fig. 4, is a detached section of the inking trough. Fig. 5, is a side view of a portion of the inking trough. Fig. 6, is a plan view of a portion of the doctor and its supporting means.

Inasmuch as my improvements relate to certain details of construction, I have illustrated and shall describe only sufficient of a cloth printing press to enable the said improvements to be understood, my improvements constituting changes in machines of the general character of the machine illustrated in Letters Patent to S. Savage, July 16, 1872, No. 129,176.

A, A′, represent the side frames of the machine supporting any suitable number of printing block frames B, each of which has two vertical end pieces D, D, sliding between guides 5, 5, the vertical movement being imparted by a revolving cam C, upon which bears a roller 6, turning upon a stud at the lower end of each end piece. The printing block frame B, is provided with a suitable cross-head connecting the end pieces and, as shown, is in the form of two I-beams bolted together side by side.

Heretofore in printing full width goods blocks have been used, each in one piece extending the full width of the cross head, and to print two half widths, another set of blocks, each in one piece with a division space in the pattern has been employed, requiring the cutting of two sets of blocks and the removal of one set and attaching of the other at each change from full to half or other width. In order to avoid this difficulty I use blocks, each consisting of a number of sections, and means for adjusting the sections on the cross-head. Thus I provide each cross-head with sliding sections or carriers capable of being moved to any desired position upon the cross-head, the carriers, carrying the block-sections which are secured to the carriers in any suitable way, as by screws *t*, Fig. 3, extending through slots *u*, and these carriers I connect detachably with the cross-head by means of suitable adjustable retainers so that any one block section may be removed by simply shifting the position of the said retainers while the remaining block sections may be loosened and carried to different positions on the cross-head and then tightened in place without altering their accurate adjustment except so far as their lateral position is concerned, and without the consumption of any other time or labor than that necessary to first loosen and then tighten the retaining devices.

The carriers may be made in different forms and different kinds of retaining devices may be employed. As shown, each carrier 9, is in the form of a plate fitting nicely the under level surfaces of the beams of the cross-head and with side ribs 10, 10, fitting accurately the straight guide edges of the beams so that while the carriers may slide beneath the beams in contact therewith they have no other motion, either vertically or longitudinally nor can they alter their position at right angles thereto and the printing block-section 8, is connected to one, two or more of said carriers according to the size of said section, and the distance between the carriers.

The retaining devices for holding either the carriers or the block-sections in contact with the cross-head are shown in the form of

clamps 12, each in the form of a narrow plate seated upon a bearing of the carrier one end overlapping one of the flanges of the I-beam and secured by means of a screw-bolt 13, which may be loosened to permit the carrier to be slid upon the cross-head and then tightened to secure it and which may be further loosened to permit the clamp to be swung to one side when the carrier and printing block-section have to be detached. By thus supporting and connecting the printing block-sections with the cross-head I am enabled to print either continuous or sectional patterns with one set of blocks and adjust the block sections with but little loss of time.

In machines as heretofore constructed much delay and inconvenience have resulted from the necessity of re-adjusting the doctors after each washing of the inking trough. As is well known the doctors must be placed in position with extreme accuracy in order to determine the thickness of the film upon the inking roller. In my improved construction I provide each doctor 35, with adjustable bearings capable of being set with extreme accuracy to determine the position of the doctor and I provide means for readily removing the doctor from its bearings and replacing it without the necessity of other adjustment. In the construction shown there is a carrier I, for each doctor 35, the said carrier consisting of a T or other angle bar 36, as long as the doctor and a series of brackets 37, riveted or otherwise firmly secured to the bar and all accurately planed to the same plane at the upper surface to provide a seat for the doctor. These brackets are provided with projections 38, accurately fitting notches 39, in the side of the inking trough J, the bottoms of the notches being accurately milled out to the same horizontal plane so that when the carrier is in position in the trough with the projections 38, engaging said notches and suitably secured therein as by screw-bolts 50, the carrier will be supported so as to maintain the doctor in a line absolutely parallel with the axis of the inking roller, the doctor being detachably clamped upon the brackets of the carrier in any suitable way, as by clamping clips 139, and screw-bolts 40.

To bring the edge of the doctor absolutely parallel to the axis of the inking roller, I employ adjusting screws 41, turning in threaded openings in the brackets 37, the head of each screw affording a bearing for the heel or outer edge of the doctor. It will be seen that after the carrier I, which constitutes the seat-bearing, and the screws 41, which constitute the edge or heel bearings of the doctor have been accurately adjusted the doctor may be removed from the carrier and replaced in accurate position without any other adjustments than those requisite to loosen the clamping devices and that the carrier I, is provided with such bearings that it may be removed and replaced in the trough without altering the accurate adjustment.

In a divisional application filed May 19, 1892, upon which Letters Patent No. 478,027, issued, I made claim to the frames having vertical and horizontal pieces pivoted together, and to the trunnions and the arrangement of beams, web pieces and bolts, as herein shown, and I do not here claim these features.

Without limiting myself to the precise construction and arrangement of parts described, I claim as my invention—

1. The combination with the cross heads extending across the machine, and printing blocks, of carriers connected with said blocks and each guided to slide upon the underside of the cross-head, and retaining devices for connecting each carrier detachably to the cross-head, substantially as set forth.

2. The combination with the cross-head, printing block sections, a series of carriers adapted to be connected to said sections and provided with guides for determining accurately the position of each carrier upon the cross-head, and means for securing each carrier detachably to the underside of the cross-head, substantially as set forth.

3. The combination with the cross-head, of printing block-sections, and carriers therefor, each in the form of a plate having guide ribs 10, and clamps for connecting the carriers detachably with the cross-head, substantially as set forth.

4. The combination with the cross-head of an oil-cloth printing machine of printing blocks in sections adapted to be brought together and separated and means for securing said sections after adjustment, substantially as described.

5. The combination with the cross-head of an oil-cloth printing machine, of printing block-sections longitudinally adjustable on the cross-head, and means for securing the sections after adjustment, substantially as set forth.

6. The combination with a cross-head consisting of parallel I-beams having the lower faces and outer edges accurately planed, of printing block sections, and a series of carriers therefor, each consisting of a plate having guide ribs 10, fitted accurately to the said outer edges and provided with clamps 12, substantially as set forth.

7. The combination with the ink trough and inking roller of a doctor, means for detachably supporting the doctor within the trough, adjustable bearings at the rear edge of the doctor, and clamps for securing the doctor in position upon said supporting means, substantially as set forth.

8. The combination of the carrier, the trough having bearings for detachably supporting the carrier, the doctor seated upon the carrier, and a series of bearings adjustable on said carrier and arranged to define the posi-

tion of the doctor thereon, the construction being such that the carrier and doctor may be removed and replaced without changing their relative position, substantially as described.

9. The combination of the carrier, the trough having bearings detachably supporting the carrier, the doctor movably seated on the carrier, adjusting screws between the carrier and the doctor, and constituting bearings for the heel of the latter, and means for clamping the doctor to the carrier, substantially as described.

10. The combination with the inking roller and the ink trough having notches at the side constituting bearings, of a carrier provided with projections fitting said notches, retaining devices for the projections, a doctor detachably seated on the carrier, and adjusting screws at the heel of the doctor, substantially as described.

11. The combination with the inking roller and the ink trough provided with notches at the side, of a carrier consisting of a bar and brackets secured thereto, said brackets having projections fitting the notches, retaining screws, a doctor seated on the brackets, and clamps for the doctor, substantially as described.

12. The combination with the inking roller and the ink trough therefor, provided with notches in the side wall, of a carrier consisting of an angle bar and two or more brackets secured thereto, said brackets having rear projections fitting said notches, securing bolts, a doctor seated on the brackets, detachable clamps, and adjusting screws between the heel of the doctor and said brackets, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE F. EISENHARDT.

Witnesses:

J. S. BARKER,

CHARLES E. FOSTER.