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PATENTED MAY 28, 1907.

E. A. FALLER.
ELECTROTYPE OR THE LIKE.

APPLICATION FILED MAY 31, 1905.

2 SHEETS—SHEET 1.

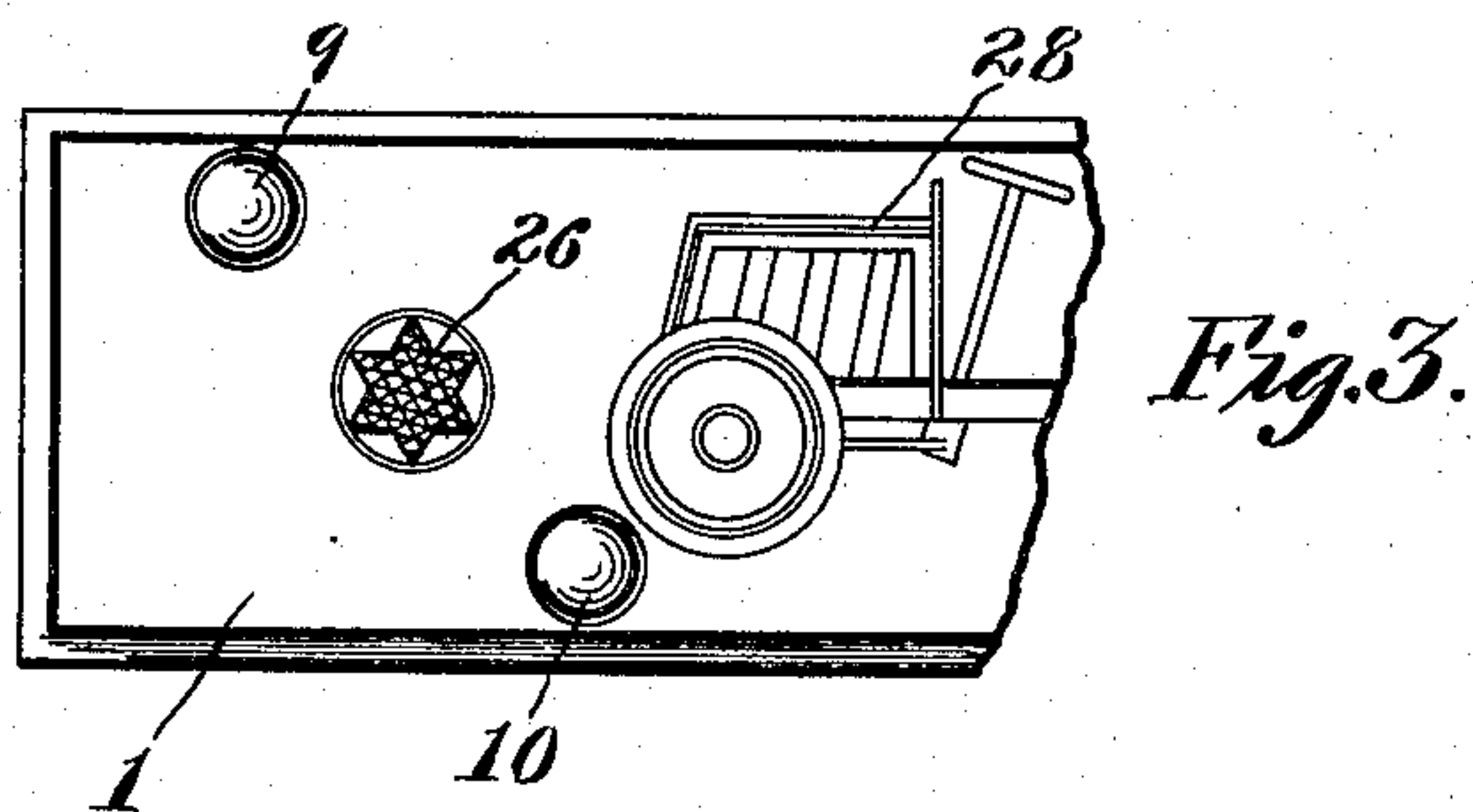
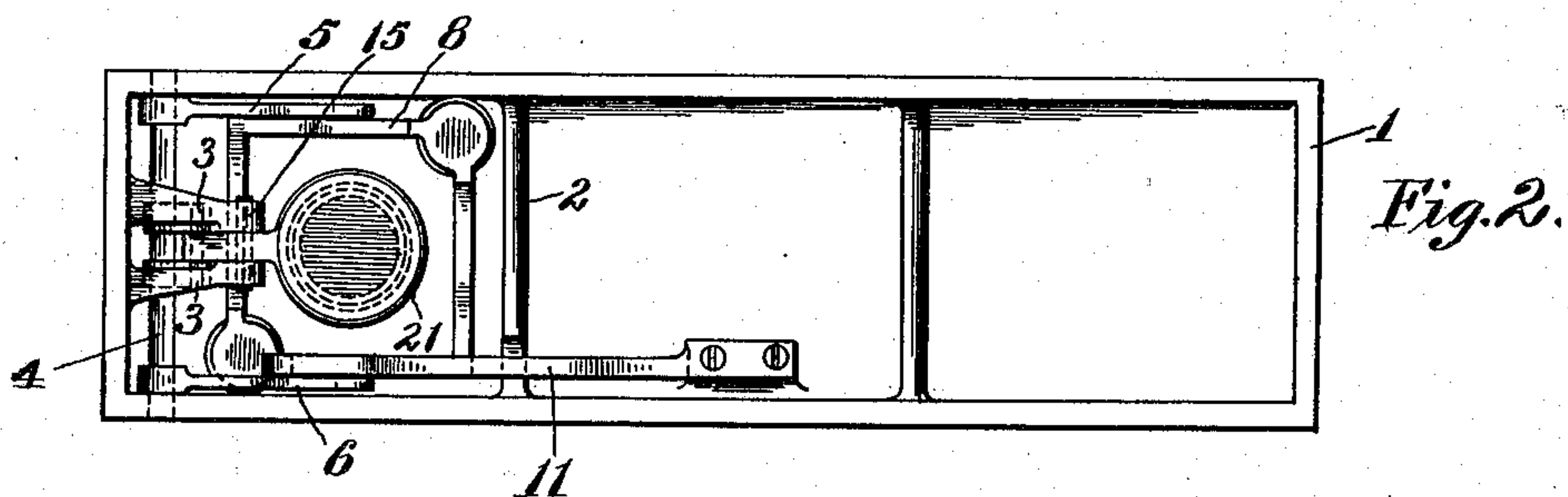
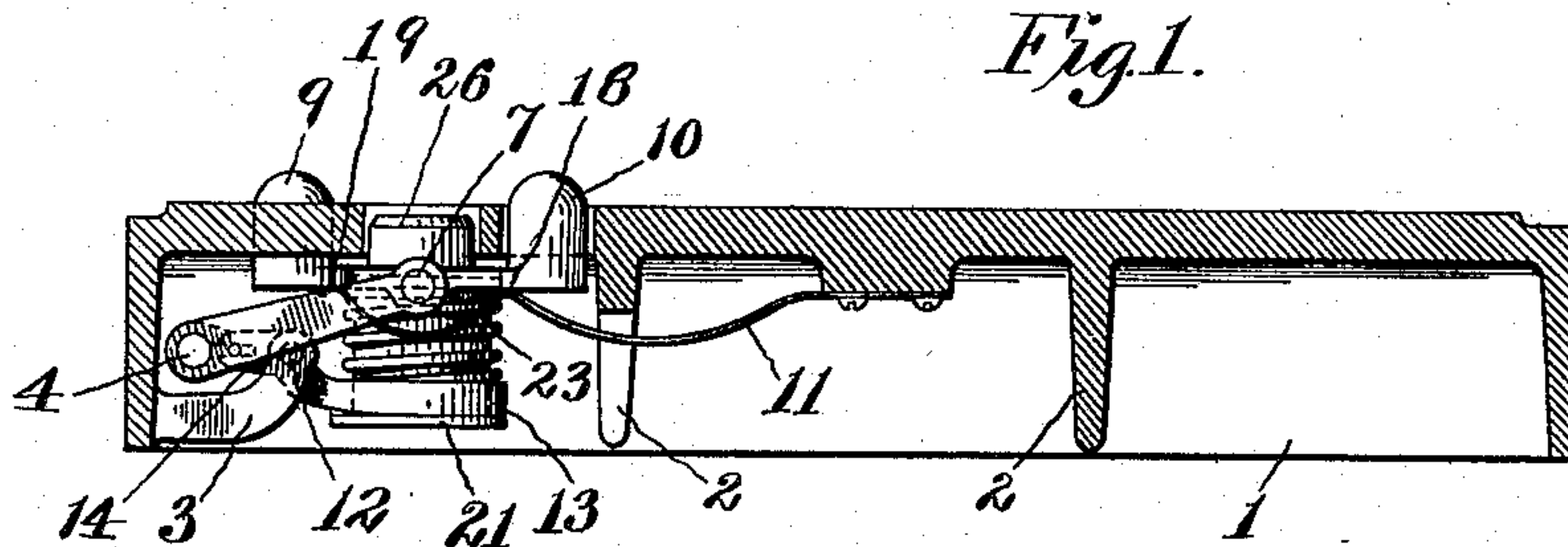
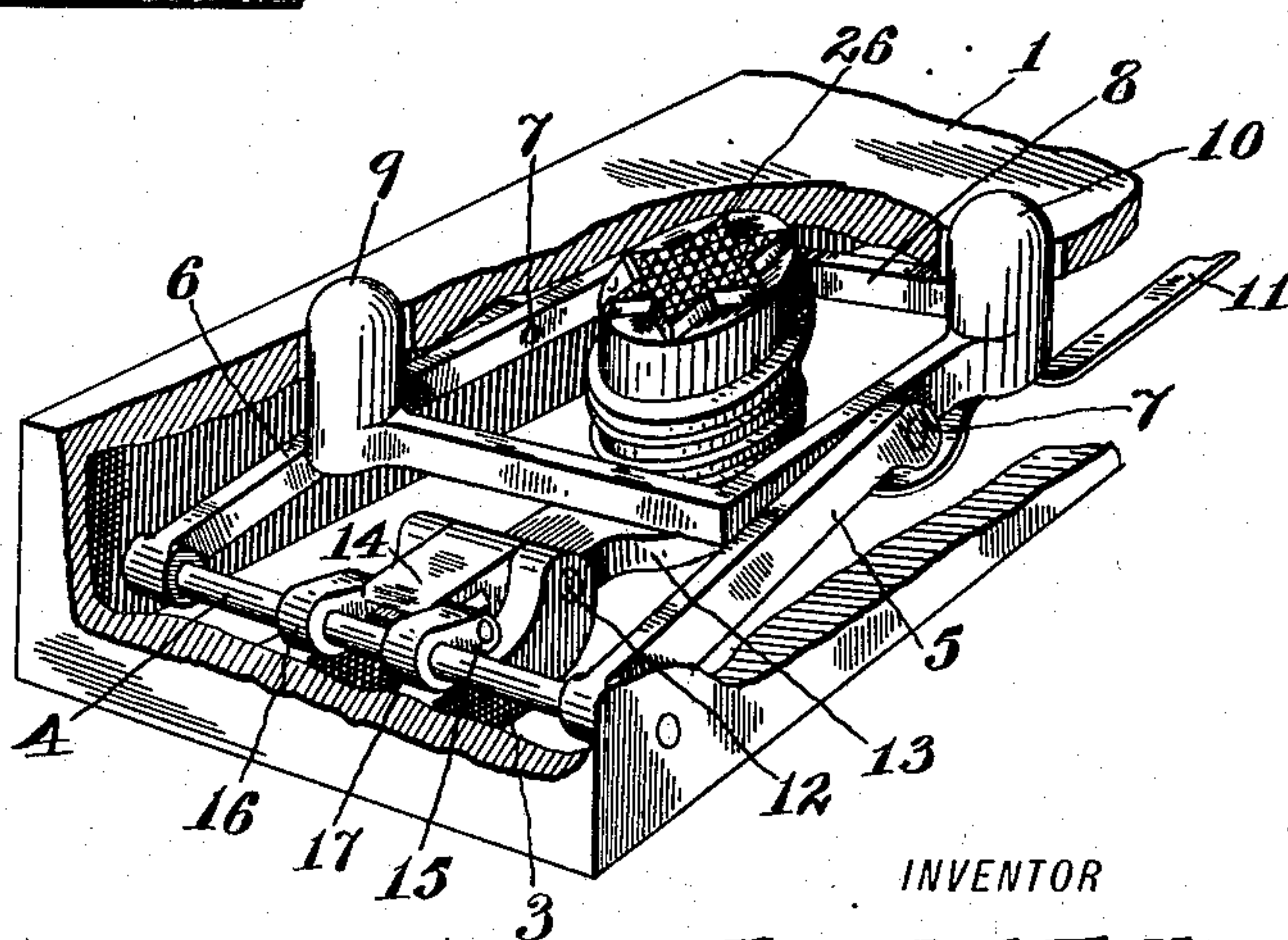


Fig. 4.



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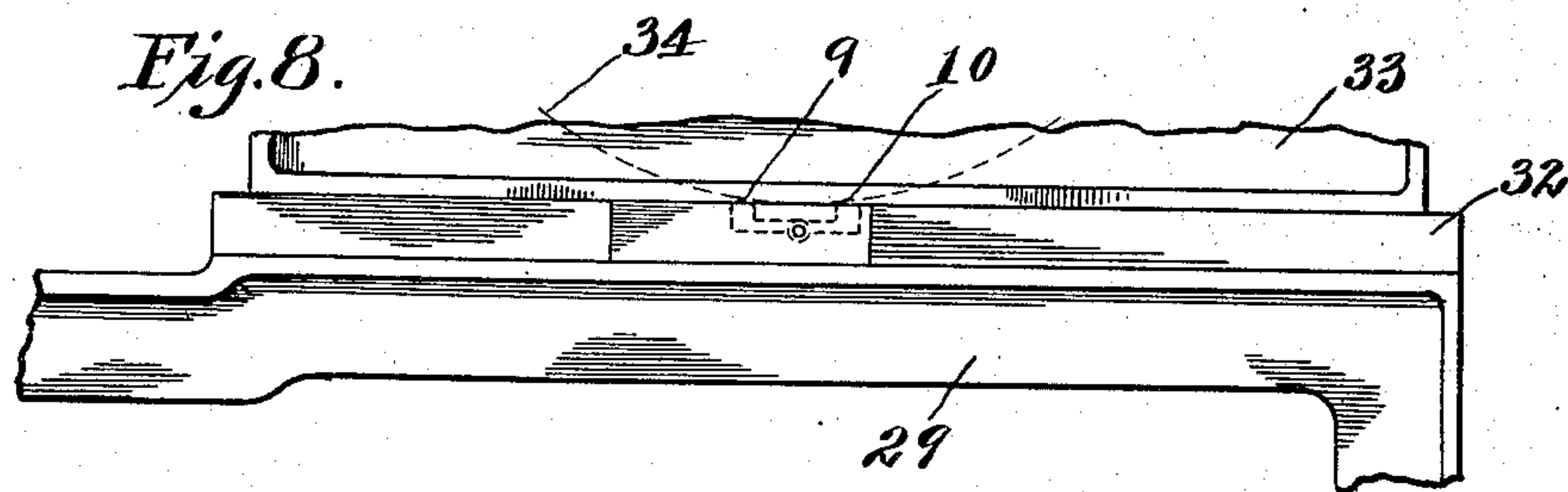
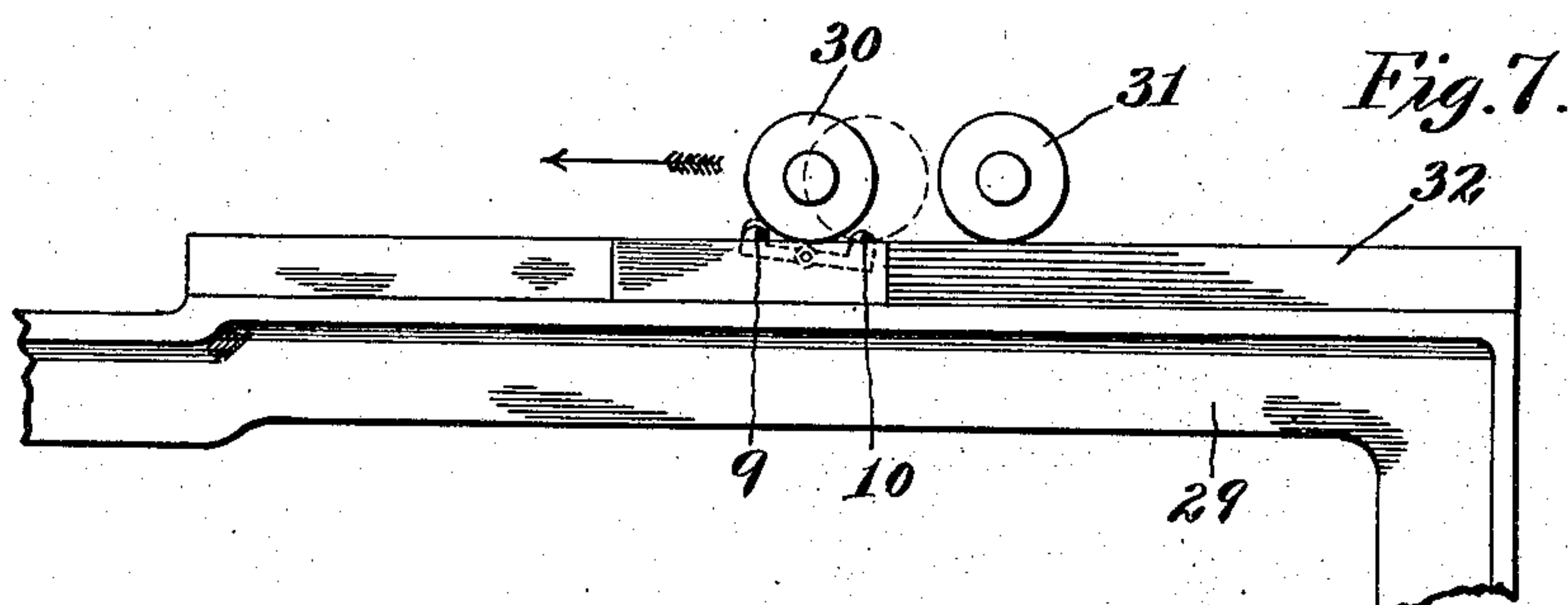
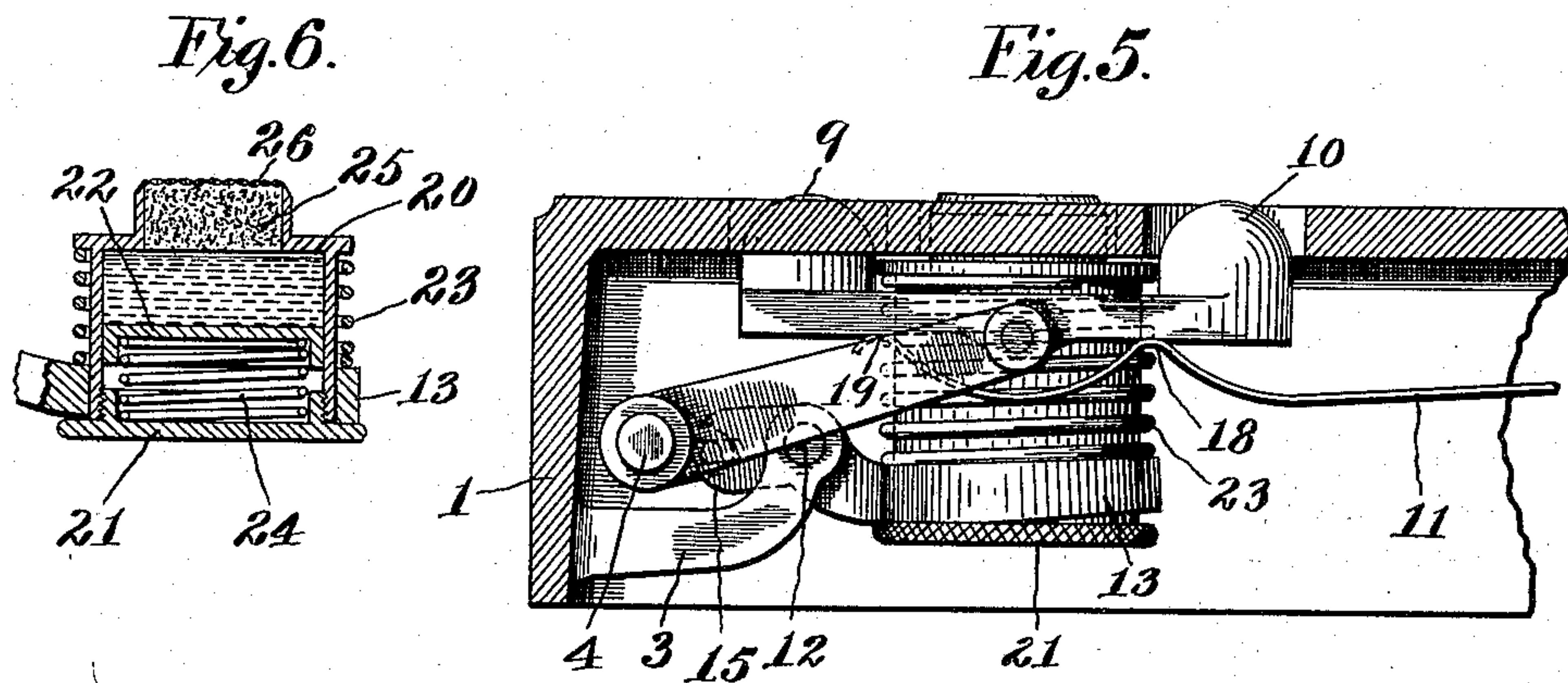
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2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ERNEST A. FALLER, OF NEW YORK, N. Y.

ELECTROTYPE OR THE LIKE.

No. 854,995.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed May 31, 1906. Serial No. 263,000.

To all whom it may concern:

Be it known that I, ERNEST A. FALLER, a citizen of the German Empire, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electro-
types or the Like, of which the following is a specification.

The invention forming the subject-matter of this application relates to the art of printing, and more especially to multi-color printing for various purposes, but particularly for advertising.

The principal desideratum in an advertisement is, of course, that it should attract the attention of the reader. This becomes all the more important if the advertisement is contained in a great mass of other advertising matter, such as is the case with a newspaper or similar publication. One of the most effective ways to attract the eye of a reader to an advertisement is to have something printed therein in a color which contrasts with the rest of the advertisement, and I am well aware that advertisements in differing or contrasting colors have been printed heretofore; but this has always entailed the use of a special press adapted for printing in colors, or handling the matter in more than one press, or by successive operations, or by otherwise interfering with the regular routine of printing. These hitherto inherent difficulties in multi-color printing have been the cause of preventing its adoption generally, and more particularly for advertising purposes in daily newspapers, magazines and other publications printed in large quantities upon presses designed to print in one color only.

The prime object of this invention is to provide such means that multi-color printing may be effected on presses now generally in use for printing in one color without in any way altering such presses and with no more trouble nor loss of time than it takes to print in one color, whereby multi-color printing in such publications as above mentioned is made commercially practicable. This I accomplish by the construction and use of an electrotpe or the like having a movable design or printing surface, means within the said electrotpe or the like operative by an impression receiving surface but non-operative by the inking mechanism of the press to effect the movement of such printing surface or surfaces to cause the same to print,

the said movable printing surface or surfaces being inked from within the electrotpe. The alteration is, therefore, made in the electrotpe or the like and not in the press.

Other novel features of my invention will be hereinafter described and more particularly pointed out in the claims.

When I refer to an "electrotpe or the like", I intend to include not only what is ordinarily called an electrotpe in the printers' art, but also any kind of wood-cut, engraving, stereotype, half-tone, or any other negative or the like adapted to make an imprint or impression on paper for the purpose of duplication.

In order to more fully describe my invention, reference will be had to the accompanying drawings, wherein:

Figure 1 is a longitudinal section through an electrotpe constructed according to my invention; Fig. 2, a top plan view of the same as seen from the bottom; Fig. 3, a fragmentary top plan view; Fig. 4, a perspective view partly in section, of the mechanism of the electrotpe; Fig. 5, an enlarged detail view of the assembled mechanism of the same; Fig. 6, a detail view of the ink receptacle, and Figs. 7 and 8 are diagrams illustrating the operation of the electrotpe, Fig. 7 showing it in the act of inking; and Fig. 8, in the act of printing.

Similar parts are represented by similar numerals throughout the several views.

The body of the electrotpe consists preferably of a casting 1, hollowed out to save weight and provided with strengthening ribs 2, to preserve rigidity. The top of the casting, which is preferably integral with the body portion thereof, forms the printing surface and may have thereon in relief or otherwise any desired design 28. It is possible, however, to construct the body containing the mechanism independently and fasten any suitable electrotpe or cut on the flat top of the same very much in the same manner as is now done in the case of wood-backed electrotpes.

Ordinary electrotpes consisting of a metal top and the backing of wood may be employed, but I prefer to make the entire electrotpe out of metal in very much the same manner as the so-called "patent matter" is made in the practice of small newspapers, namely, the entire column or part of the column is cast type-high, so that no wood backing is required. The reason that this is

preferable is that in this manner, by the use of a special mold, all the necessary bearings, cavities, etc., can be provided for in the backing of the electrotpe.

5 The casting carries two projections 3 for a purpose hereinafter mentioned. In the casting is fulcrumed a shaft 4 having fastened thereto two levers 5 and 6. On the extreme ends of these levers is fastened a rocking
10 frame 8 by means of the fulcra 7. This frame is free to oscillate on the said fulcra, and carries two projections 9 and 10. A spring 11 made fast to the body of the electrotpe, as shown, maintains all parts so far
15 mentioned in the position shown in Fig. 1.

Carried near the upwardly extending ends of the projection 3 is a shaft 12, forming a pivoted support for a lever 13. This lever 13 is provided at one end with a circular
20 opening to accommodate an ink reservoir, which will be described later. The other end of this lever 13 is bifurcated as at 14, to engage a pin 15. This pin 15 is carried by two short arms 16 and 17, fastened to the shaft 4.

25 It will be readily seen from an inspection of the drawings that a downward movement of the levers 5 and 6 will result, through the medium of the mechanism just described, in an upward movement of that end of the lever
30 13 which is provided with a circular opening above referred to. The spring 11, however, is bent in such a manner as to bear against the frame 8, and in two points 18 and 19, located respectively at opposite sides of the
35 fulcra 7. The result is, therefore, that not only is the frame 8 pressed upward, but it is also maintained in a horizontal position. It follows from the foregoing that the pierced end of the lever 13 is therefore normally in
40 its lowest position.

In the circular opening of the lever 13 is carried the ink reservoir, which is shown in detail in Fig. 6. It consists, among other parts, of a cylinder 20, provided at its lower
45 end with a screw cap 21. A piston 22 fits inside the cylinder ink-tight, and a spring 23 surrounds the outside of the cylinder and acts as an equalizer and buffer for the impression. A spring 24 normally presses upon
50 the piston 22 as shown. In the top of the ink reservoir is a packing of porous material 25 and above this, a disk of very fine wire gauze 26, which forms the printing surface. The tension of the spring 24 is so regulated
55 that it will at all times keep the packing 25 saturated with ink without, however, forcing the same through the top 26.

The inside of the cylinder 20 is filled with an inking preparation of any suitable consistency and preferably of a color contrasting with or differing from that of the regular color used in the press. The amount of ink forced through by the piston 22 can be regulated both by the consistency of the ink and
60 the pressure of the spring 24. Either or both

of these will, of course, be regulated so as to provide a good impression and leave the right amount of ink on the paper in any instance. I have found in practice, however, that it is not necessary to actually force the ink
70 through the porous top, in all cases, by the pressure of the spring, as the top 26 embeds itself slightly in the paper during the so-called "dwell" of the press, and when the paper recedes, a small vacuum is formed,
75 causing a small quantity of the ink to ooze through the top 26, thereby providing a supply for the next impression.

From an inspection of the drawings it will be seen that either of the projections 9 or 10 may
80 be depressed without causing any appreciable or effective movement of the levers 5 and 6, and, consequently, of the cylinder and printing surface 26. If, however, the two projections 9 and 10 are depressed simultaneously, or if one is held down while the other
85 is depressed, they will cause the levers 5, 6 to swing on their fulcra 4 against the pressure of the spring 11, and consequently bring the top or printing surface 26 of the cylinder 20
90 up to the printing height. I shall now show how these projections 9, 10 are operated to cause the printing surface to print, and how the said projections are rendered non-operative by the ink rollers of the press, whereby
95 the passage of such ink rollers over the electrotpe does not effect an inking of the movable printing surface. For this purpose, reference will be had to Figs. 7 and 8, which illustrate diagrammatically the operation of
100 the device in a press. Fig. 7 shows the bed of a printing press 29, the ink rollers 30, 31 and the "form" 32, containing, among other matter, the electrotpe. It is immaterial whether the rollers or the form 32 move on
105 the bed. Assuming that the form 32 is stationary and the rollers move in the direction of the arrow, it will be seen that the ink roller 30, on passing over point 10, will depress this point to the printing level but will
110 not cause any actuation of the levers 5, 6. The only result is, therefore, to raise the point 9 still farther above the printing level to an extent equal to the depression of point 10. If now the ink roller proceeds farther so as to
115 strike against point 9, the reverse will happen, namely, projection 9 will be depressed, while projection 10 is elevated to the same extent. The roller having left projection 10, there is no obstacle in the way to prevent the said
120 projection from being raised. It will readily be seen, therefore, that if there is more than one ink roller the above operation will repeat itself as long as the distance between pro-
125 jections 9 and 10 is less than the diameter of the ink rollers employed, since at no time then can one ink roller be on projection 9 while the next is on projection 10.

From the foregoing it will be seen that it matters not how many times the ink rollers
130

pass over these projections, the auxiliary printing surface 26 will not be brought into contact with such rollers, for the reason that each time an ink roller passes over a point
 5 above the auxiliary printing surface, the roller finds such surface below the general surface of the electrotpe. It is, therefore, plain that while all those parts of the electrotpe which are type-high take ink from
 10 the rollers, the printing surface 26 does not.

When the printing cylinder or platen comes into engagement with the printing surface of the electrotpe, this will simultaneously engage both projections 9 and 10, with the result that the frame 8 carrying them, and the
 15 ends of the levers 5, 6 pivoted thereto will be carried downward, imparting limited rotation to the shaft 4. This will cause the rod 15 to send the end 14 of the lever 13 down,
 20 and the other end carrying the cylinder up, thus sending the printing surface 26 against the paper and printing on such paper the design on such printing surface in any desired color.

25 If an ordinary platen press is employed and the operation is carried to the point of actual printing, the condition illustrated in solid lines in Fig. 8 obtains, in which 33 is the platen carrying the sheet of paper or other
 30 material for the impression, and both projections 9 and 10 have been depressed sufficiently to raise the cylinder 20 to such an extent as to cause its printing surface 26 to leave an impression upon the paper. This
 35 condition is also shown in Fig. 5.

In the case of a cylinder press, the conditions are slightly different, as the platen in this case is cylindrical instead of flat. As the curvature of this cylinder, shown in Fig.
 40 8 in dotted lines, however, is so great in comparison with that of an ink roller, it also will cause practically simultaneous and complete depression of the projections 9 and 10, and consequently cause the auxiliary printing
 45 surface 26 to make its impression.

The action of a rotary press such as is now used for large newspapers differs again from those so far described, as the electrotpe used therein instead of having a flat surface
 50 must be curved; but the same relation of curvature between the printing cylinder and the ink rollers obtains, so that an auxiliary impression can still be made. Since in the case of these rotary presses, the whole matter contained on a page is printed from a curved
 55 stereotype plate, in order to use my invention with such presses, a special mold must be provided, which, in the casting of the stereotype plate, leaves the necessary recesses for the accommodation of my electrotpe which
 60 itself must have a curvature to conform to that of the curved stereotype plate.

The three cases above referred to cover practically all methods employed at the present
 65 time in printing, but this invention lends

itself to many other uses which it is not necessary to refer to here specifically.

This electrotpe is intended to be indiscriminately used with different kinds of matter in all kinds of printing presses. Now it
 70 may be that sometimes the electrotpe has such a position in the chase or form that the ink rollers pass over it in a direction parallel to its longer sides, and at other times in a direction parallel to its shorter sides; in
 75 other words, with the present methods of printing, there are two positions possible for the electrotpe to assume in relation to the ink rollers in the press, namely, it can be put in the form so that either the long or
 80 the short side is parallel with the axes of the ink rollers. It is consequently necessary that the lever 8 should operate in the manner previously described irrespective of the direction in which the ink rollers pass over the
 85 projections 9 and 10. This is accomplished by placing the projections 9 and 10 diagonally across the face of and equi-distant from the center of the auxiliary printing surface of the electrotpe. Moreover, it is preferable
 90 that the auxiliary printing surface should always be included between the diagonal projections 9 and 10, for while this is not essential in using the electrotpe in a platen press, it is essential when in use with a cylinder press.
 95 This will be readily understood by referring to Fig. 8 of the drawings, where the cylinder of a cylinder press is indicated by dotted lines. If the projections 9 and 10 were not on both sides of the auxiliary printing surface, the
 100 cylinder would pass both of these points before or after reaching the auxiliary printing surface, and consequently the device would not operate properly.

In the form of the invention shown in the
 105 drawings, I have shown a star as the design intended to be printed in the contrasting or different color, but it is, of course, understood that any other design, letter or letters may be substituted therefor.
 110

The apparatus so far described in detail is suitable for printing copies not exceeding a few thousand, and this, of course, will suffice for practically all the publications of smaller towns and cities. The cause of this limitation is the comparatively restricted size of
 115 the ink reservoir 20. The size of this reservoir is limited by the depth of the electrotpe, and as electrotypes are usually of a standard depth (namely, $\frac{1}{2}$ of an inch), I have found
 120 that the ink reservoir 20 cannot have a greater total height than $\frac{3}{4}$ of an inch. Moreover, the diameter of the reservoir must preferably bear a certain proportion to its length, or rather to the axial length of the
 125 piston, or otherwise the latter will not be guided properly. Thus I have found that it is impracticable in the form shown to make the diameter greater than $\frac{3}{4}$ of an inch, the piston itself preferably having an axial
 130

length of $\frac{3}{8}$ ". The apparatus so far described in detail has, however, the advantage of great simplicity and cheapness, and whenever a small edition or number of impressions is required and the quality of the impression in the contrasting color is of minor consequence, it will serve its purpose. When I speak of the quality of the impression, I have, of course, reference to the varying amount of ink deposited upon the paper, thereby causing a variation in the exact outline of the figure or design printed, in the contrasting ink, but for all ordinary purposes the work done is quite good enough.

What I claim as my invention is:

1. A printing device comprising a body portion, a lever pivoted within said body portion, a printing surface mounted on said lever, means within said body portion for inking said printing surface, levers operatively connected to the end of said first mentioned lever, a rocking frame pivotally supported by the second mentioned levers, and lugs extending from said rocking frame above the upper surface of the body portion and arranged to cooperate with the impression surface of a press to operate said printing surface.

2. A printing device, comprising a body portion, levers fulcrumed therein, a rocking frame pivotally supported by said levers, a pair of lugs carried by said rocking frame and adapted to extend above the upper face of said body portion, said lugs being arranged to be engaged one at a time by the ink rollers of a press and simultaneously by the impression receiving surface, a pivoted lever having one end operatively connected for movement by said levers, an ink receptacle mounted upon said lever near the other end thereof, and a printing surface carried by said ink receptacle and adapted to pass through the upper face of said body portion.

3. A printing device, comprising a hollow body portion, levers fulcrumed therein, a rocking frame pivotally supported by said levers, a pair of lugs carried by said rocking frame and adapted to extend above the upper face of said body portion, said lugs being arranged to be engaged one at a time by the ink rollers of a press and simultaneously by the impression receiving surface, a pivoted lever having one end operatively connected for movement by said levers, an ink receptacle mounted upon said lever near the other end thereof, and a printing surface carried by said ink receptacle and adapted to pass through the upper face of said body portion, and a spring acting to keep said lugs normally above the printing level and said printing surface normally below the same.

4. A printing device, comprising a hollow body portion, a pair of levers fulcrumed therein, a rocking frame pivotally supported by said levers, a pair of lugs extending from

diagonally opposite portions of said rocking frame and adapted to extend above the upper face of said body portion, said lugs being arranged to be engaged one at a time by the ink rollers of the press and simultaneously by the impression receiving surface, a pivoted lever having one end operatively connected for movement by said pair of levers, a closed ink receptacle mounted upon said lever near the other end thereof, a printing surface carried by said ink receptacle and located between said lugs on a diagonal line connecting the two, the said printing surface adapted to be sent above the upper face of said block or casting, and a spring acting to keep the said lugs normally above the printing level and the said printing surface normally below the same.

5. A printing device, comprising a hollow body portion, a pair of levers fulcrumed therein, a rectangular rocking frame pivotally supported by said levers, a pair of lugs extending from diagonally opposite corners of said rocking frame and adapted to extend above the upper face of said block or casting, said lugs being arranged to be engaged one at a time by the ink rollers of the press and simultaneously by the impression receiving surface, a pivoted lever having one end operatively connected for movement by said pair of levers, a closed ink receptacle yieldingly mounted upon said lever near the other end thereof, a spring pressed plunger mounted in said receptacle and adapted to force the ink to the said printing surface, porous material in the top of said receptacle behind the said printing surface, and a spring acting to keep the said lugs normally above the printing level and the said printing surface normally below the same.

6. An electrotpe or the like, having relatively movable printing surfaces, movable lugs arranged to extend above the fixed top surface of the electrotpe or the like, a system of levers connecting said lugs with the movable printing surface, resilient means cooperating with said levers to normally maintain the tops of the said lugs above the top surface of said electrotpe or the like and to maintain the movable printing surface normally below the same, said lugs and levers being so arranged that the depression of said lugs one at a time will not raise the movable printing surface, but the depression of both lugs will raise said movable surface, the said lugs being so situated as to be engaged one at a time only by the ink rollers of a press, passing over said electrotpe or the like either longitudinally or transversely of the same, and by the impression receiving surface simultaneously.

7. A printing device, comprising a body portion, a movable printing surface therein, movable lugs arranged to normally extend above the upper surface of said body portion,

said lugs being so situated as to be engaged one at a time only by the ink rollers of a press passing either longitudinally or transversely of said device and by the impression receiving surface simultaneously, and a system of levers coöperating with said lugs to impart motion to said printing surface.

8. A printing device, comprising a body portion, a movable printing surface therein, 10 movable lugs arranged to normally extend above the upper surface of said body portion, said lugs being arranged in a line passing diagonally across said movable printing sur-

face and so situated as to be engaged one at a time only by the ink rollers of a press passing either longitudinally or transversely of said device and by the impression receiving surface simultaneously, and a system of levers coöperating with said lugs to impart motion to said printing surface. 15 20

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

ERNEST A. FALLER.

Witnesses:

MAX SUDON,
MIMA RAMSEY.