

No. 730,451.

PATENTED JUNE 9, 1903.

R. B. FRIEND.

PAD OR BLANK HOLDING AND FEEDING DEVICE.

APPLICATION FILED MAY 20, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

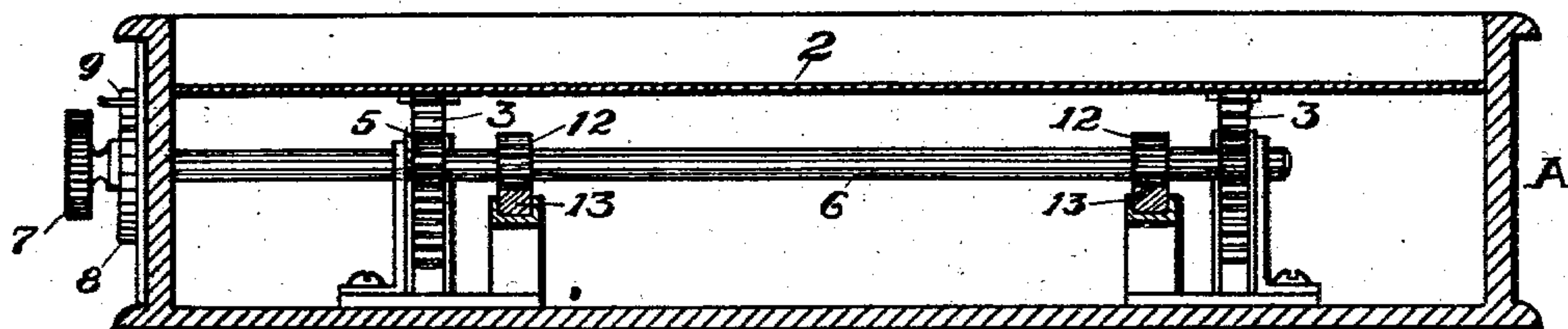


Fig. 1.

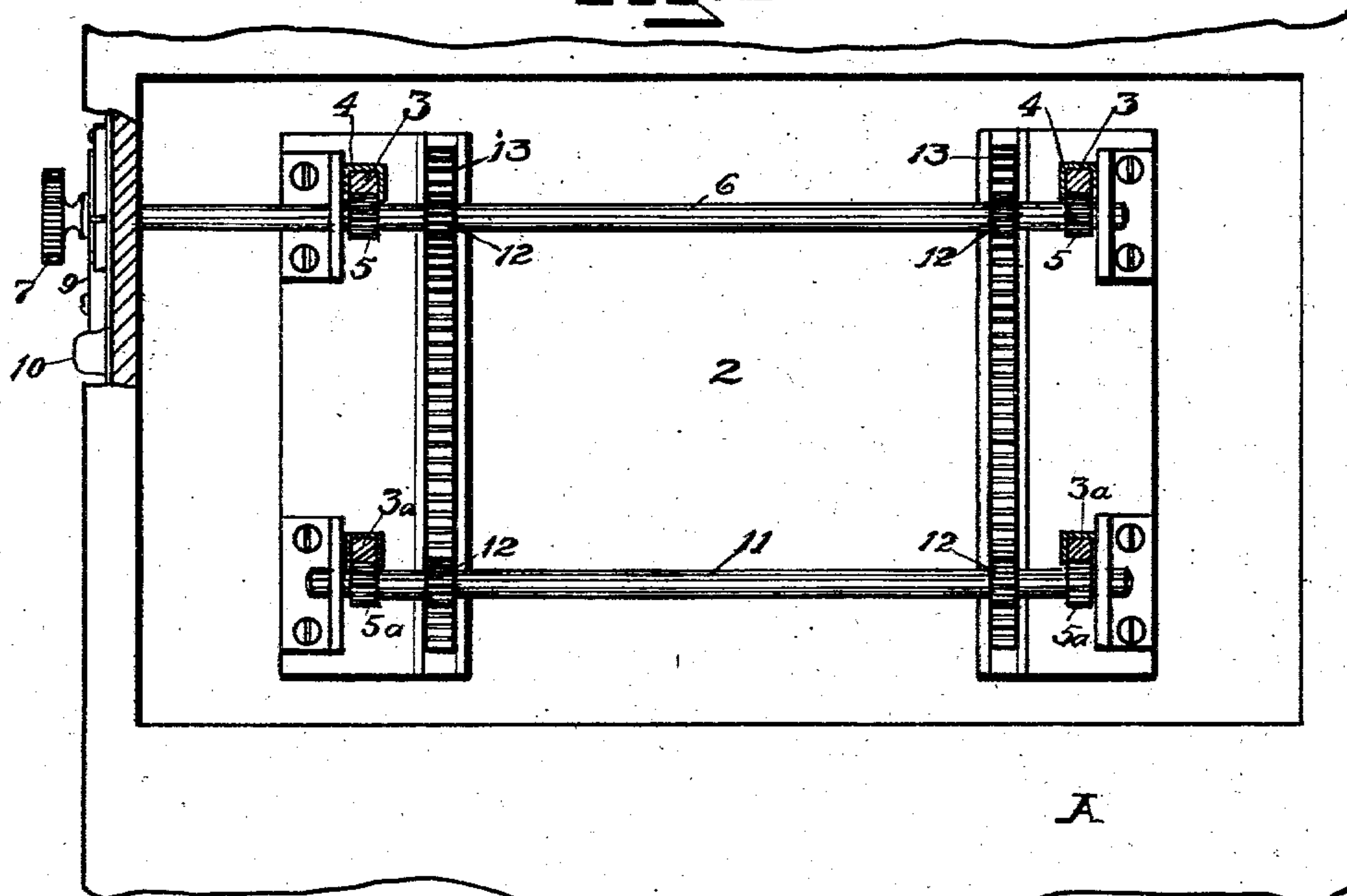


Fig. 2.

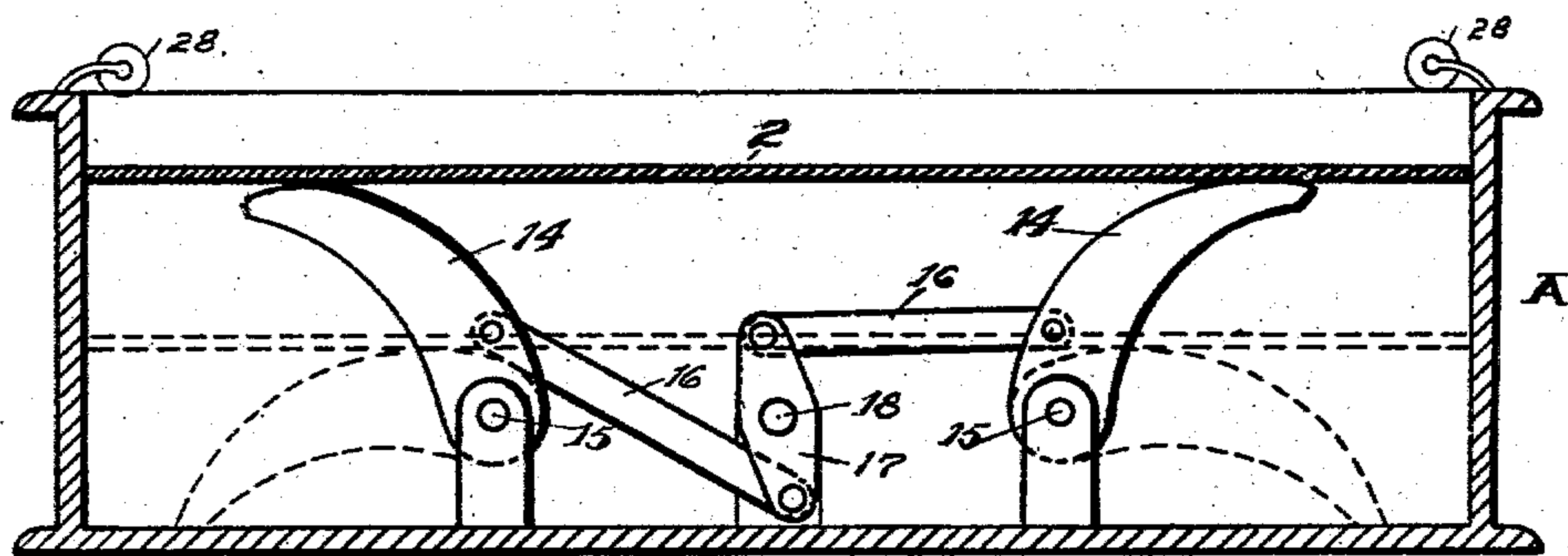


Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 9.

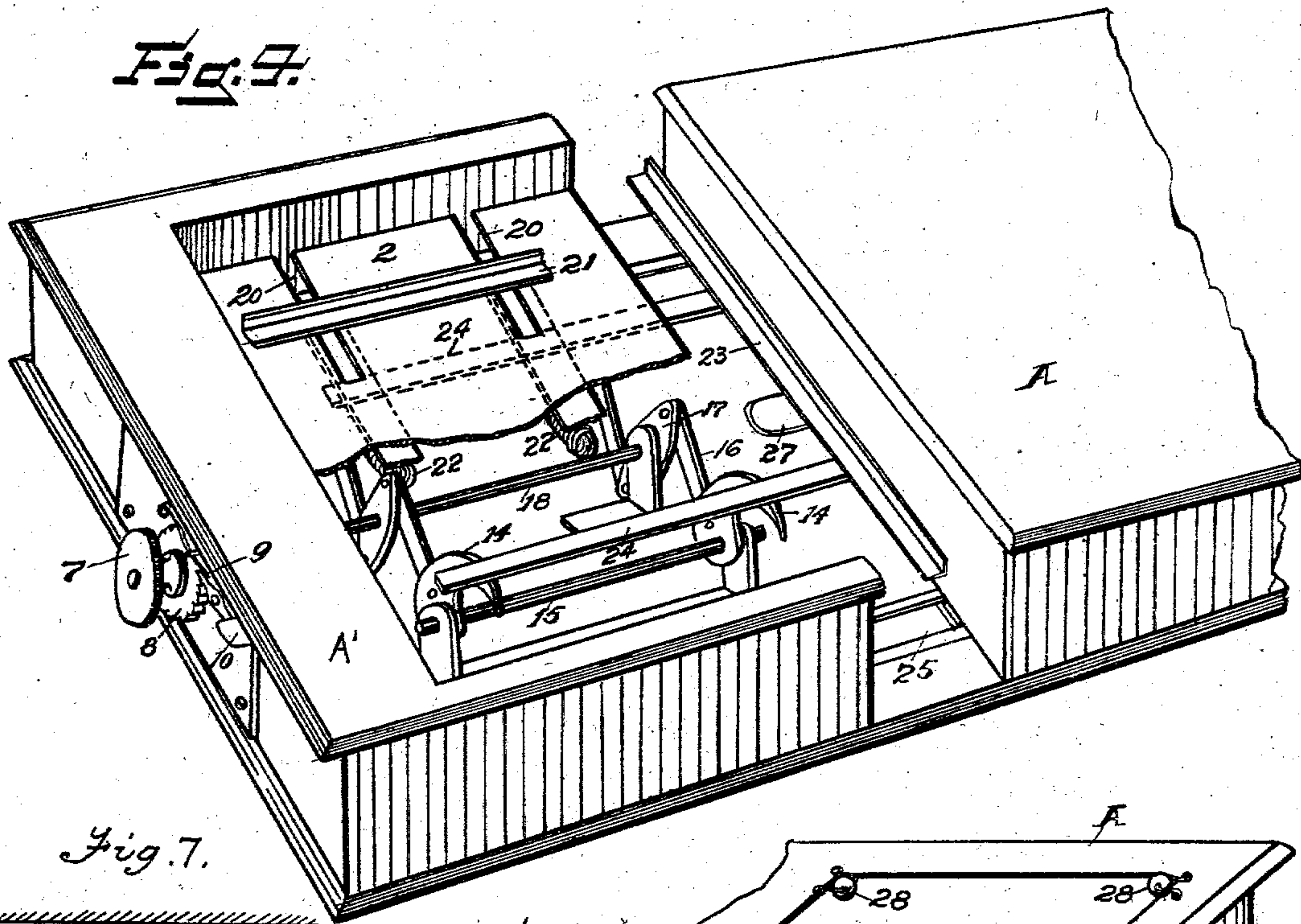


Fig. 7.

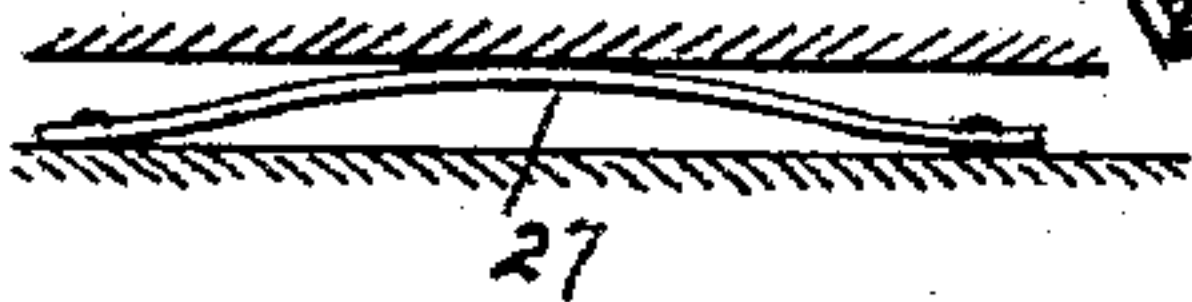


Fig. 6.

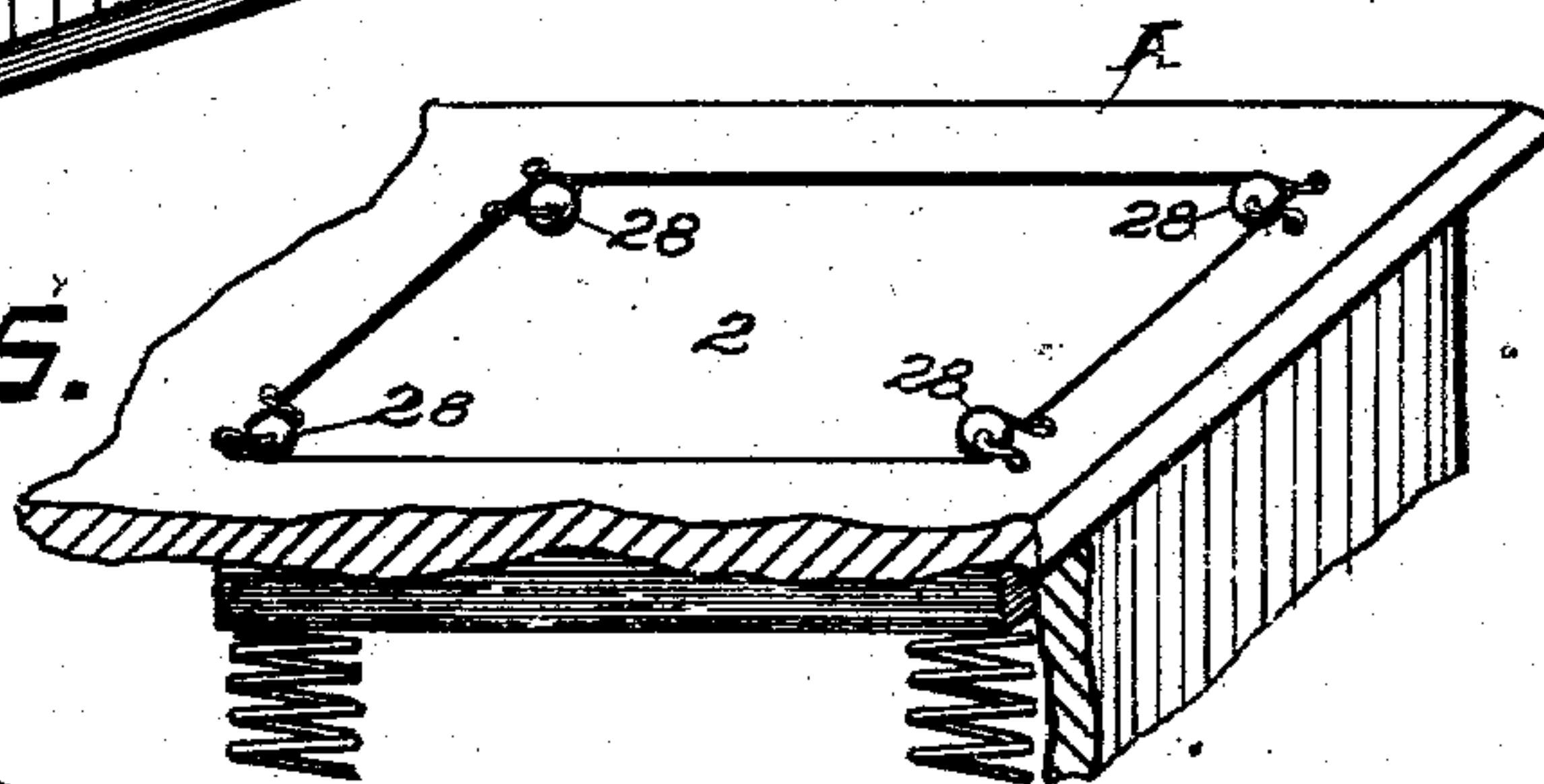
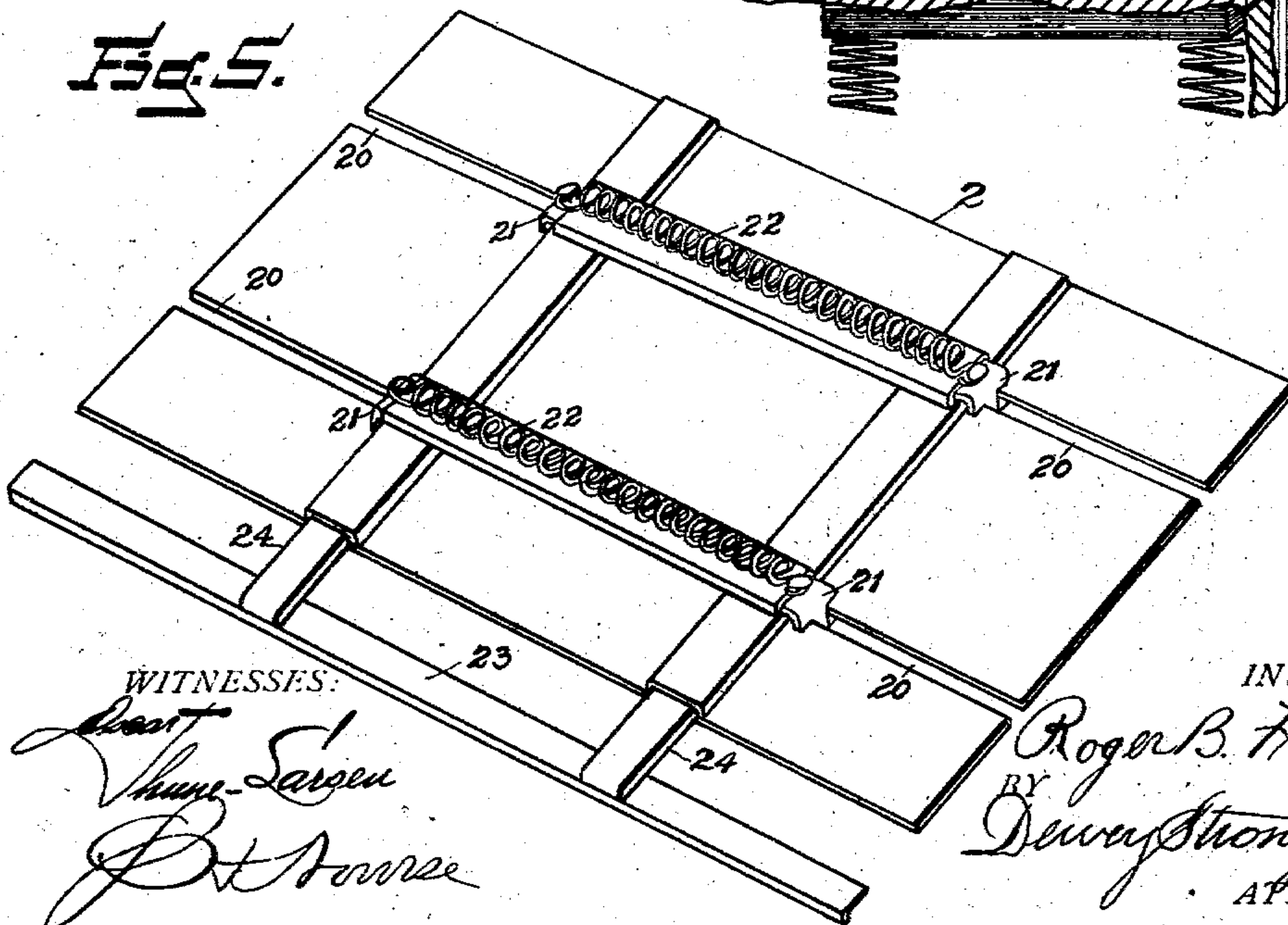


Fig. 5.



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UNITED STATES PATENT OFFICE.

ROGER B. FRIEND, OF OAKLAND, CALIFORNIA.

PAD OR BLANK HOLDING AND FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 730,451, dated June 9, 1903.

Application filed May 20, 1902; Serial No. 108,207. (No model.)

To all whom it may concern:

Be it known that I, ROGER B. FRIEND, a citizen of the United States, residing in Oakland, county of Alameda, State of California, have
 5 invented an Improvement in Pad and Blank Holding and Feeding Devices; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to devices for the convenient handling of blanks of all descriptions which are used in packages or pads of greater or less thickness, such as telegraphic or insurance blanks or checks, post-office money-order blanks, writing-pads, or any papers
 15 which are put up in similar forms.

It consists of the parts and the constructions and combinations of parts, which I will hereinafter describe and claim.

Figure 1 is a transverse vertical section showing gearing. Fig. 2 is a plan view of gearing. Fig. 3 is a section showing cam mechanism. Fig. 4 is a perspective view showing extension desk and table. Fig. 5 is
 20 a perspective bottom view of table and extension. Fig. 6 is a partial section showing ball-bearing holders. Fig. 7 is a detail of the spring 27.

Blanks such as are used for telegraphic or insurance purposes, for making out money-
 30 orders in the Post-Office Department, and for many other purposes are conveniently put up in packages which are bound or connected together at one edge so that each blank or sheet may be removed after being used.
 35 These packages are often quite thick, and in order to conveniently write upon the uppermost one it is necessary to have some support for the hand and arm which will bring them approximately level with the surface to
 40 be written on. Such support is frequently inconvenient to be had.

It is the object of my invention to provide a desk with a rising and falling platform or surface upon which the pad or blanks may
 45 be supported and by means of which the upper surface of the pad or blanks may be kept constantly at such a level as to be convenient for the writer.

My invention consists of a desk A, of any
 50 suitable size or construction, preferably slightly inclined and adapted to allow the writer to rest his hand or forearm upon it.

Within an opening in the desk is a table 2, having an area approximately equal to that of the opening, and this table is supported
 55 upon devices by which it may be constantly raised as fast as blanks are used or removed from the upper surface of the pad which is placed thereon, so that the surface may be kept approximately level with that of the
 60 desk and convenient for the use of the writer. In order to first introduce the blanks, the table must be depressed, and the mechanism by which it is raised is also capable of being depressed to a point low enough to contain
 65 the blanks which are designed to be used upon the table. Many forms of such devices may be used. In Figs. 1 and 2 I have shown a desk adapted to use large blanks, the opening in the desk being of such size as
 70 to accommodate blanks of this description. In order to raise and lower the table, I have shown standards 3, slidable in vertically-fixed guides, as at 4. These standards are toothed and form rack-bars, and the teeth project
 75 from one side of the guides, so as to engage with the teeth of gears 5, which are mounted upon a horizontal shaft or shafts, as at 6. For small blanks one set of vertically-moving
 80 rack-bars 3, one at each end of the table 2, will ordinarily be sufficient to support and guide the table in its movements, in which case the shaft 6 may extend through the side of the case, and upon the outer end it has a
 85 knob or hand-wheel 7, by which it can be readily turned. A ratchet-wheel, as shown at 8, is fixed to the shaft, and a fulcrumed spring-pressed pawl 9 is adapted to engage
 90 the ratchet-wheel, thus holding the latter, the shaft, and the table at any desired point of elevation. After the table has been elevated as high as it will go and the blanks exhausted the table may be again depressed by disengaging the pawl 9 from the ratchet-wheel.
 95 This is easily effected by attaching a thumb-piece, as at 10, to the opposite end of the fulcrumed pawl, so that by pressing upon this thumb-piece the pawl may be lifted, and by the use of the milled wheel 7 the shaft 6 can be turned so that the gears 5, engaging the
 100 rack-bars 3, will depress the latter, and with them the table, which is carried upon their upper ends, when it will be ready for another pad or blank. If the table is of too large size

to be properly carried and supported by the single pair of standards 3, another set may be employed, so that the four standards form a rectangular support at suitable distances 5 from the edges of the table 2. In this case it is necessary to provide for the operation of both sets of standards 3 and 3^a in unison. This is effected by means of a second shaft 11, journaled within the case parallel with 10 the shaft 6, and each of the shafts carries toothed gears 12, which are in line with each other transversely to the shafts. These gears engage with horizontally guided and slidable rack-bars 13, which are held by their guides 15 in mesh with the gears 12, so that when the shaft 6 is turned in either direction the gears 12, acting upon the rack-bars 13, will cause the shaft 11 to be turned in unison with the shaft 6. The shaft 11 carries gears 5^a, similar to the gears 5, and these engage the teeth of the vertical rack-bars 3^a in the same manner that the gears 5 engage the rack-bars 3. Thus by turning the hand-wheel 7 both shafts will be caused to move simultaneously to 25 either raise or lower all four of the supporting-standards 3^a.

In place of the gears and toothed rack-bars I may in some cases employ a device consisting of lever arms or cams 14, fixed to shafts 30 15, which are journaled below the table 2, so that the latter will rest upon the lever arms or cams, and by turning the shafts 15 these arms or cams are moved so as to raise or lower the table in the same manner as described for the gears and rack-bars. In order to raise and 35 lower these arms in unison, I have shown them connected by links 16 with a two-armed crank or equivalent disk 17, which is fixed upon a journal-shaft 18 intermediate between 40 the shafts 15. One of the links 16 connects above the shaft 18 and the other below. The shaft 18 extends through the exterior of the case and is provided with a turning-wheel and a pawl and ratchet similar to the devices described for the shaft 6. It is only necessary 45 to turn this shaft when, through the connecting-links, the ends of the cams or levers may be raised or depressed, carrying the table which rests upon them and the pad which 50 lies upon the table.

In some cases the devices hitherto described are especially designed for pads of a certain size, for which the apparatus has been designed; but if it is desired to employ the apparatus for various sizes of pads the table 2 may be made as large as the largest pad which it will be required to use thereon. This table has slots formed in the edges, as shown at 20, and clips 21 have extensions passing through 60 the slots and connected with springs 22 beneath the table. The tendency of these springs is to draw the clips toward each other, and the edges of the clips will grasp the sides of any pad or blank which may be introduced 65 between them. Thus by separating them any pad may be laid upon the table, and when released the clips will be drawn by the springs

so as to clasp the edges of the pad. In order to also hold the pad longitudinally, I have shown a clamping-bar 23, having upturned 70 edges, and this bar is fixed to slides 24, which are movable in guides beneath the table.

The table may be set close to the upper end of the desk, as here shown, and the slide 23 may be slidable from the lower edge of the 75 table, so as to be drawn out at right angles with the clamps 21 until it is sufficiently removed to allow the blank to be placed between the upper edge of the opening and the clamp 23, the latter being pushed up against 80 the lower edge of the blank, while the clamps 21 are drawn against the sides of the blank.

In order to accommodate the desk to the varying sizes of blanks thus used, the part A is here shown as mounted upon slides which 85 are movable in guides 25, fixed to the base of the apparatus, and the desk can thus be withdrawn sufficiently to allow the blank to be placed between the clamps and afterward moved up to close contact with the clamp 23, 90 so that it will be practically close to the lower edge of the blanks.

It will be understood that instead of moving the lower part of the desk in this manner the opposite portion A' may be made 95 slidable and movable to admit the blank, in which case the portion A may be stationary, and the opposite portion A', carrying the blanks, will then be in close contact with the upper edge of the desk portion A. A spring 100 27 serves to hold the part A at any point of adjustment. This spring is in practice a flat curved spring fixed at the ends so that the upward curve of its center presses against the bottom of the movable part and makes 105 sufficient friction to hold it against too free movement, but allows it to be pushed out or in by sufficient pressure. With this form of desk either of the devices heretofore described for raising and lowering the table may be employed. 110

In some cases it may be found desirable to support the table 2 upon elastic springs, of which there may be four, located beneath the corners of the table 2, so as to constantly 115 press it upward. In such cases I have shown clamps or holders so fixed to the sides of the opening within which the table moves as to project slightly over the space occupied by the blank, and as the table and blank are 120 pressed upwardly by the springs these projecting devices prevent the blank being lifted above the level of the desk. In order to render the blanks easily removable from beneath these clamps or holders, I prefer to make the 125 clamps or holders with ball or equivalent bearings, which will rest upon the blank, but which will yield freely to allow the top blank to be withdrawn without tearing it. These devices are shown at 28, Figs. 3 and 6. 130

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination in a desk having an

opening in the top and a rigid table vertically movable therein, of parallel shafts, vertically-movable supports for the table and means including horizontally-reciprocating members extending between said shafts and adapted to move the supports in unison.

2. The combination in a desk having an opening formed in the upper part, a slotted table movable therein, mechanism by which said table is raised or depressed to maintain the upper surface of the table substantially even with the top of the desk, and clamps mounted in the slots of said table and movable toward and from each other whereby blanks of different sizes may be secured thereto.

3. The combination of a desk having an opening, a table vertically movable in said opening, means by which said table may be raised or depressed within the opening, clamps carried by the table and guided and slidable to and from each other and springs by which they are normally drawn together whereby blanks or pads of various sizes may

be held between them, and other clamps slidable at right angles with the first-named clamps whereby the remaining edges of the blanks may be inclosed, said desk including two portions one longitudinally movable relative to the other, one of said portions provided with slides and the other portion having guides for said slides.

4. The combination with a desk having an opening made in the upper portion, of a vertically-movable table adapted to carry a pad composed of united sheets of paper, means by which the table is pressed upward, and antifrictional bearings projecting over the surface of the pad to maintain it substantially even with the desk-top, and to allow the sheets to be removed without damage.

In witness whereof I have hereunto set my hand.

ROGER B. FRIEND.

Witnesses:

S. H. NOURSE,
JESSIE C. BRODIE.