Nov. 3, 1925. 1,560,328

M. F. SCHULIST

COMBINED STAPLING, PERFORATING, AND PUNCHING MACHINE

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Fig. 2

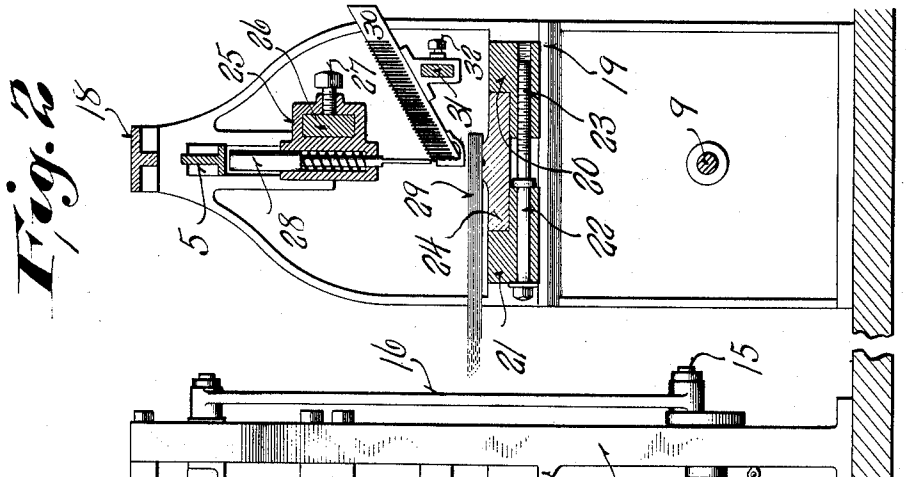
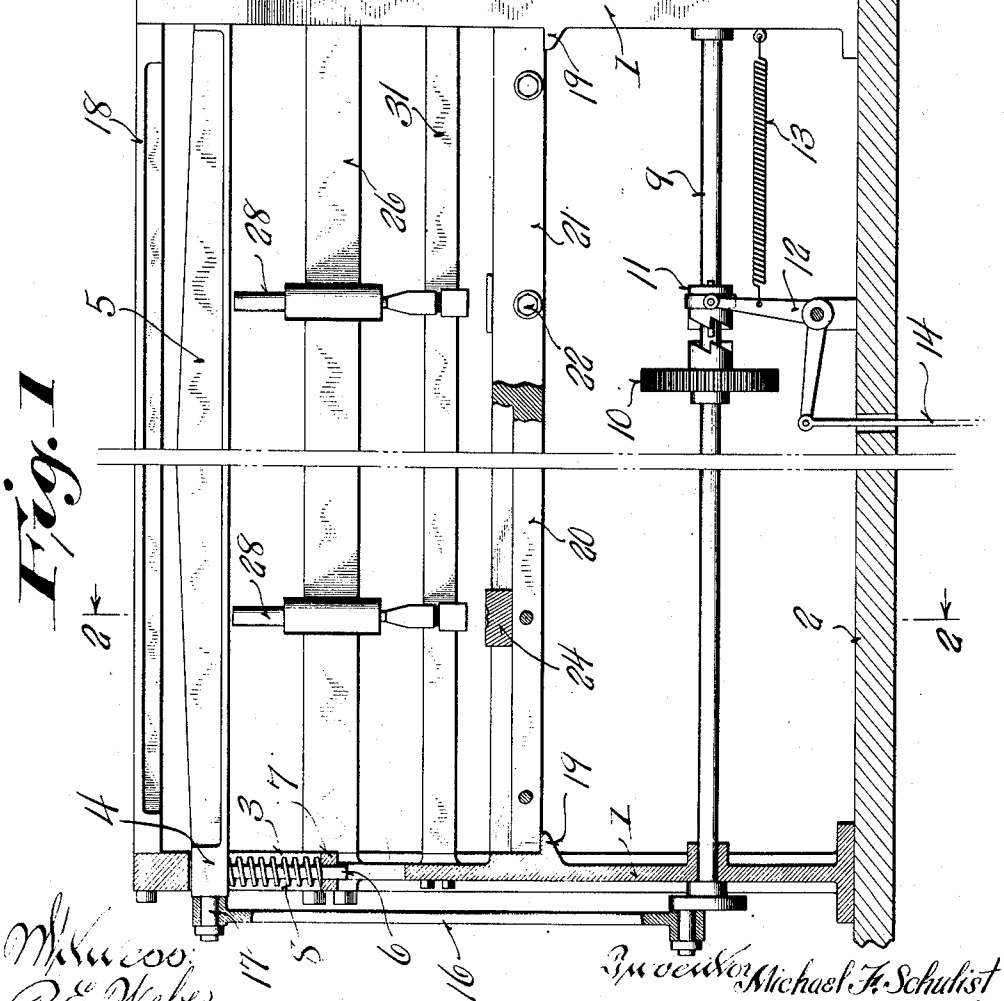


Fig. 1



Witness:
R. E. Weber

Inventor
Michael F. Schulist
Attorneys

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Fig. 4

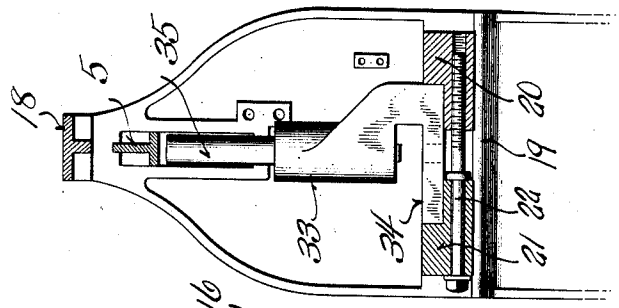
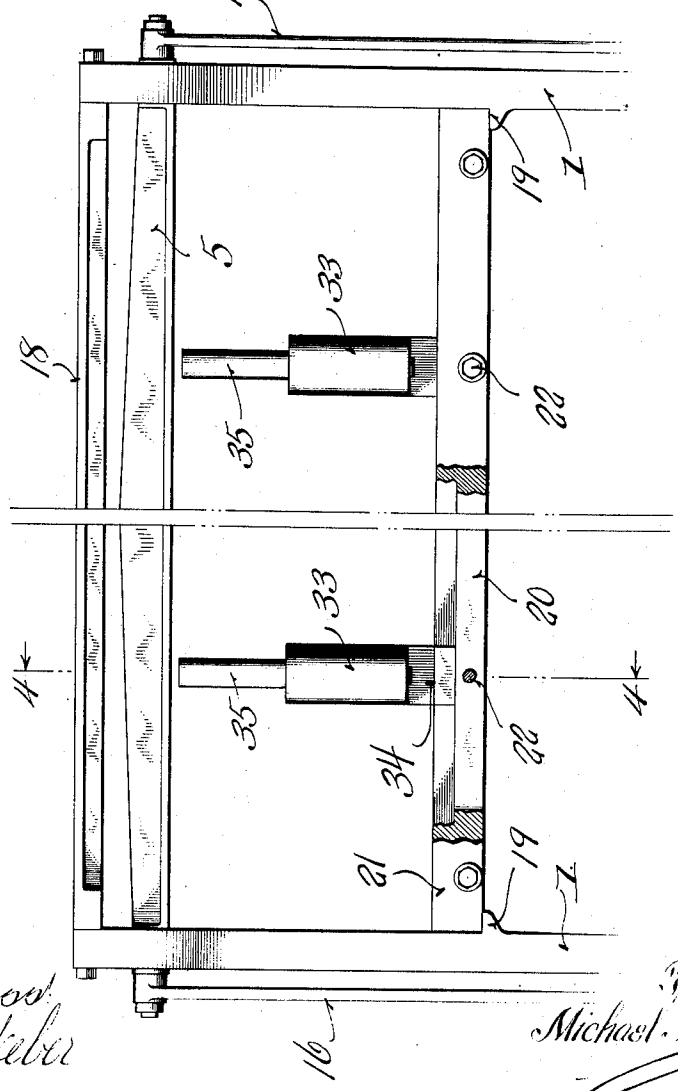


Fig. 3



Witnesses:
R. E. Weber

Inventor:
Michael F. Schulist

Attorneys

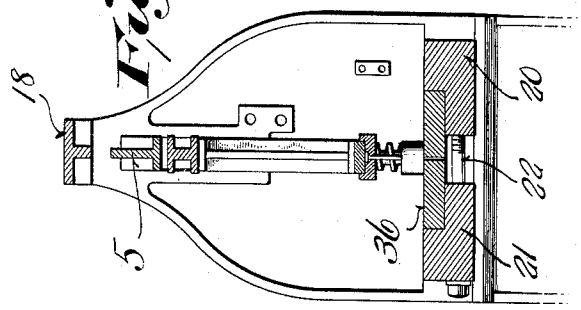
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Filed Aug. 23, 1924 3 Sheets-Sheet 3

Fig. 6



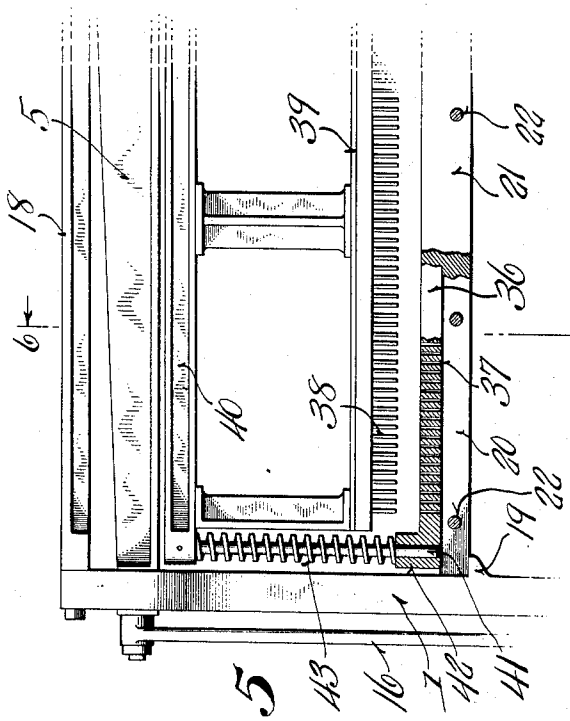


Fig. 5

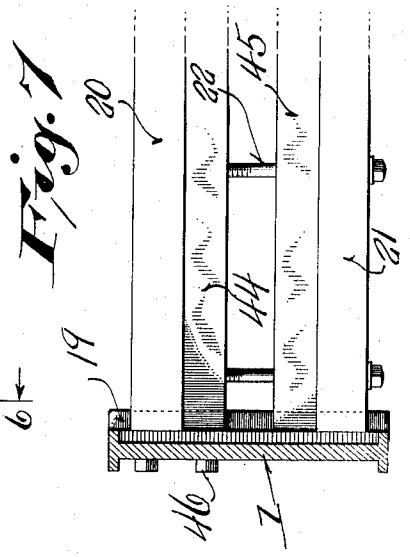


Fig. 7

Witnesses:
R. E. Weber

Inventor:
Michael F. Schulist
by
Attorneys

Patented Nov. 3, 1925. 1,560,328

UNITED STATES PATENT OFFICE.

MICHAEL F. SCHULIST, OF MILWAUKEE, WISCONSIN.

COMBINED STAPLING, PERFORATING, AND PUNCHING MACHINE.

Application filed August 23, 1924. Serial No. 733,802.

To all whom it may concern:

Be it known that I, MICHAEL F. SCHULIST, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Combined Stapling, Perforating, and Punching Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to a combined stapling, punching, and perforating machine.

Heretofore, separate machines have been made for stapling, punching, or perforating, and it has been necessary to have all three types of machines whenever book binding, the manufacture of paper pads, loose leaves, etc., have been undertaken. It rarely happens that all three of these machines are needed at one time, thus resulting in idle machines needlessly occupying space representing idle capital.

This invention is designed to overcome the above noted defects, and objects of such invention are to provide a single machine which will staple, punch, or perforate; to provide a machine in which the essential elements common to all three machines are retained in a single machine; and to provide a machine in which the different instrumentalities for perforating, punching, or stapling, are separately and removably received by the main machine.

Further objects are to provide a compact machine which is adapted to operate upon any of a plurality of different types of work, such as books, pads, loose leaves, which does not occupy much room, and may, if desired, be mounted upon a work table, and to provide a simple and easily operated machine.

An embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is a front elevation of the machine partly in section, showing it equipped with a stapling device.

Figure 2 is a transverse, sectional view on the line 2—2 of Figure 1.

Figure 3 is a fragmentary view corresponding to Figure 1, showing the device as it appears when equipped with a punching instrument.

Figure 4 is a transverse sectional view on the line 4—4 of Figure 3.

Figure 5 is a fragmentary elevation showing the device equipped with a perforating instrument or tool.

Figure 6 is a transverse view on the line 6—6 of Figure 5.

Figure 7 is a fragmentary sectional view showing the clamping jaws of the bed plate of the main machine.

The machine comprises a pair of uprights 1 which may, if desired, be mounted upon the work table top 2. These uprights are slotted adjacent their outer ends, as indicated at 3, so as to slidably receive the ends 4 of a main beam-like crosshead 5. This crosshead is preferably of T-shape, as may be seen from Figures 2, 4, and 6, so as to secure maximum strength. It is provided with rigidly carried downwardly projecting pins 6 securely carried by the ends 4 thereof. These pins slide through apertures in webs 7, transversing the slots 3, as may be seen from Figure 1. Helical spring 8 loosely surround the pin 6 and aid in balancing or carrying the weight of the crossheads.

Means for operating the crosshead may comprise a main transverse drive shaft 9 journalled in the lower portion of the uprights and provided with a driving gear, pulley, or similar device, as indicated at 10. This driving device may loosely rotate upon the shaft in a continuous and uninterrupted manner, and the shaft may be readily coupled thereto by means of the slidably splined clutch member 11 carried by a forked end of one arm of the bell crack 12, such bell crank being urged towards open position by means of the spring 13. The other end of the bell crank is provided with an operating rod 14 preferably being extended to a foot treadle not shown. The outer ends of the shaft 9 are equipped with cranks 15 which are connected by means of pitman 16 with the outer ends 4 of the crossheads, preferably by means of pin 17 rigidly attached to such ends.

The frame is preferably braced across the top by means of a transverse member 18 and the uprights are provided with inwardly projecting supporting lugs 19, as may be seen from Figure 1. These supporting lugs carry the stationary member 20 of the clamping jaws, which form the bed plate of the machine. The movable member 21 of the clamping jaws is slidably carried upon these lugs and rotatably carries a plurality of clamping bolts 22, whose threaded portions 23 are screwed into the stationary portion 20 of the bed plate. These members 20 and 21 extend from one upright completely

across the machine to the other upright, as is apparent from a consideration of Figure 1.

In using the machine for stapling, the anvils 24 are each clamped between the jaws 20 and 21, such anvils resting upon the underhanging portion of the jaws and abutting the shouldered portions, as apparent from Figure 2. The bolts 22 are tightened and thus securely clamp the anvils in position. The movable portion of the stapling tool, or instrumentality, is carried by a frame or body portion 25, which is supported by a transverse bar 26 removably bolted to the uprights. The stapling devices are fixed in position by means of set screws 27, as may be seen from Figure 2. The plungers 28 of the stapling devices project upwardly from the body portion 25 and are positioned directly beneath the lower flat face of the operating crosshead, or beam 5, so that when such beam descends these plungers will be depressed and forced downwardly into operating position, thus forcing a staple through the work 29 supported upon the anvils 24. The staple carrying or feeding means 30 is slidably received upon a bar 31, such bar being removably attached to the uprights 1. These feeding devices are also locked in adjusted position by means of set screws 32, as may be seen from Figure 2.

It is to be noted from Figures 1 and 2 that either a paper tablet, a book, or other type of work, may be easily operated upon by this machine, as the machine is completely open from one side to the other, and even if it is desired to staple an open book, such operation may be readily performed.

When the device is used for punching operation, the punches 33 replace the stapling devices,—the bars 26 and 31 being removed. These punches are provided with rectangular bases 34 which are clamped between the jaws 20 and 21 of the bed plate, as shown in Figure 4, and the punches are provided with upwardly extending plungers 35 which are alined with and positioned below the transversely extending crosshead 5 so that upon descent of the crosshead, the punches will be operated. It is to be noted that the bases 34 of the punches constitute die blocks and that the material may be punched directly through such bases and through the space between the jaws 20 and 21 of the bed plate.

When using the machine as a perforating device, the punches are removed and the die plate or base plate 36 of the perforator is locked between the jaws 20 and 21 of the bed plate, as shown in Figures 5 and 6. This base plate or die plate is provided with a plurality of apertures 37 into which corresponding punches 38 are projected. These punches are carried by transverse bar 39, rigidly joined to an upper transverse beam 40, as may be seen from Figure 5. The beam 40 rigidly carries downwardly projecting elongated rods 41 which are accurately fitted within apertured ends 42 of the base plate 36. Helical springs 43 surround these rods and carry the weight of the movable portion of this perforator. The bar 40 of the perforator is positioned below the transverse crosshead 5 of the main machine and is adapted to be depressed when said cross head descends.

Figure 7 shows the stationary and movable jaws 20 and 21 of the bed plate of the main machine, as they appear when all of the operating devices or tools have been removed. These clamping jaws, as will be noted, are provided with underhanging supporting ledges 44 and 45, which support the bases of the tools or instruments while they are being positioned and also prevent inadvertent motion thereof when the machine is in operation. As previously stated, the jaw 20 is stationary and rests upon the lugs 19 of the uprights 1 and is preferably secured in place by means of the bolts 46. The other jaw 21 slidably rests upon the lugs 19 and is held in position by means of the clamping bolts 22.

It will thus be seen that a machine has been provided which may be employed to perform any one of a large number of operations in bookbinding, pad forming, or similar lines of manufacture, and that such machine is relatively simple, is compact, and is easily operated. The machine is preferably so formed that it may be readily positioned upon a work bench without requiring much room, and is so constructed that the interchange of the tools may be most easily effected.

Although the invention has been described in considerable detail, it is to be understood that it may be variously embodied and is to be limited only as claimed.

I claim:—

1. The combination of a machine having a pair of uprights, a pair of clamping jaws extending from one upright to the other and constituting a bed plate, a crosshead slidably carried by said uprights and located above said bed plate, manually controlled power driven means for reciprocating said crosshead, a tool having a base removably locked between said clamping jaws and having a movable plunger located below said crosshead, a guide for said tool, and a stationary bar supporting said guide and having its ends secured to said uprights.

2. The combination of a machine having a pair of uprights, a bed plate extending from one upright to the other and being formed of a movable portion and a stationary portion, bolts for drawing the movable portion towards said stationary portion, a cross-

head located above said bed plate and guided at its ends by said uprights, a transversely extending shaft journalled in said uprights, cranks at the ends of said shaft, links connecting said cranks with the ends of said crosshead, manually controlled power means for rotating said shaft, tools having bases locked between the stationary and movable portions of said bed plate and having operating plungers located below said crosshead and having guides for said plungers, a stationary transverse bar having its ends secured to said uprights and slidably supporting said guides, whereby said guides may be adjusted along said bar.

3. A machine for removably receiving and operating any one of a plurality of tools having relatively stationary bases and movable plungers, said machine comprising a pair of uprights, a bed plate extending longitudinally between said uprights and having a pair of relatively movable jaws adapted to clamp the bases of any of said tools, a crosshead extending longitudinally between and guided by said uprights and located above said bed plate, said crosshead having a flat lower face adapted to contact with said plungers when depressed, a transversely extending shaft journalled in said uprights and provided with cranks at its ends, links connecting said cranks and the ends of said crosshead, power-driven rotary means loosely carried by said shaft, a clutch for operatively coupling said means and said shaft, and a transverse bar extending between said uprights and adapted to support a portion of said tools.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

MICHAEL F. SCHULIST.