No. 793,728. PATENTED JULY 4, 1905.

B. F. MACKALL.

MACHINE FOR MAKING METAL BINDING STRIPS.

APPLICATION FILED JAN. 19, 1905.

2 SHEETS—SHEET 1.

FIG. 2

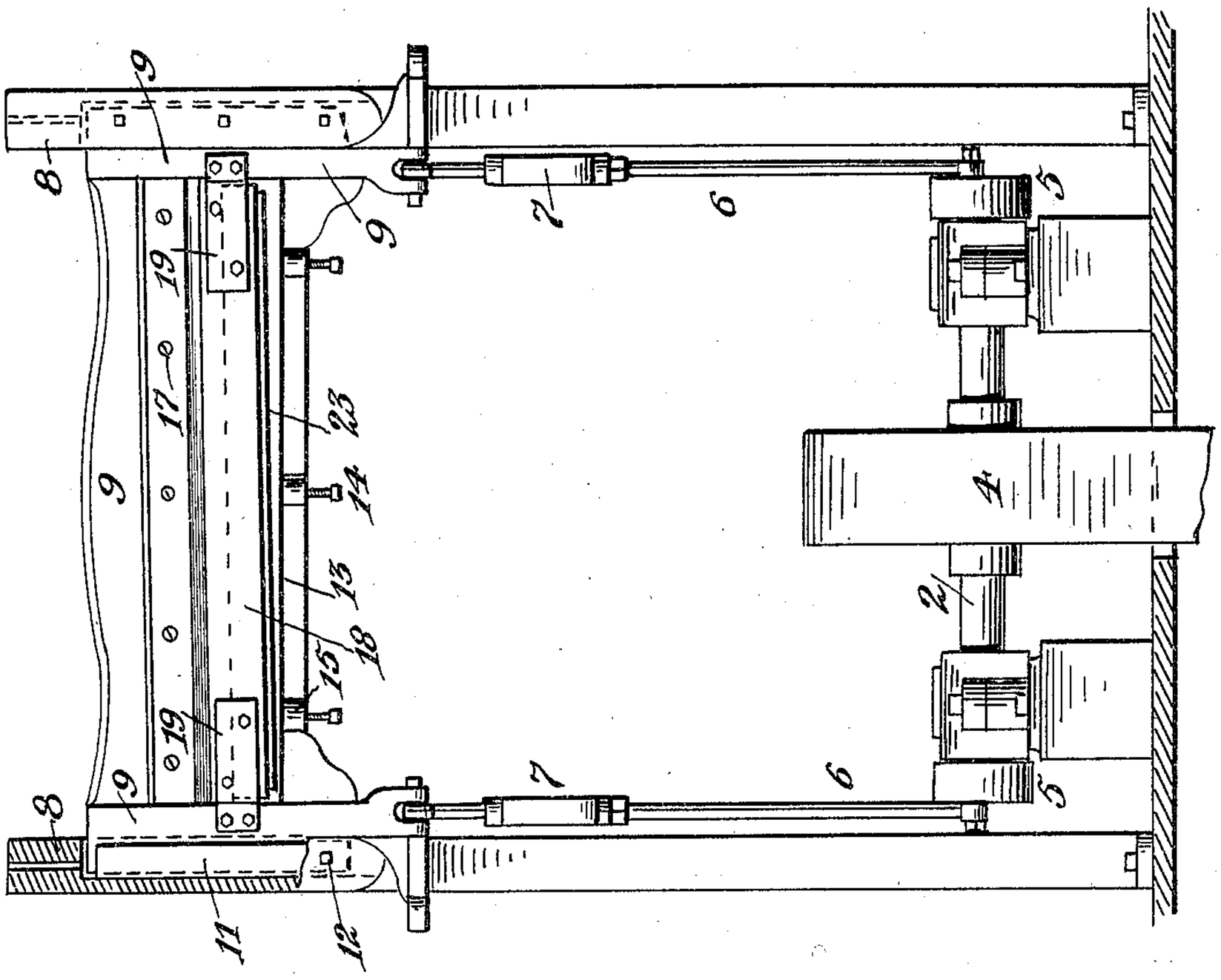
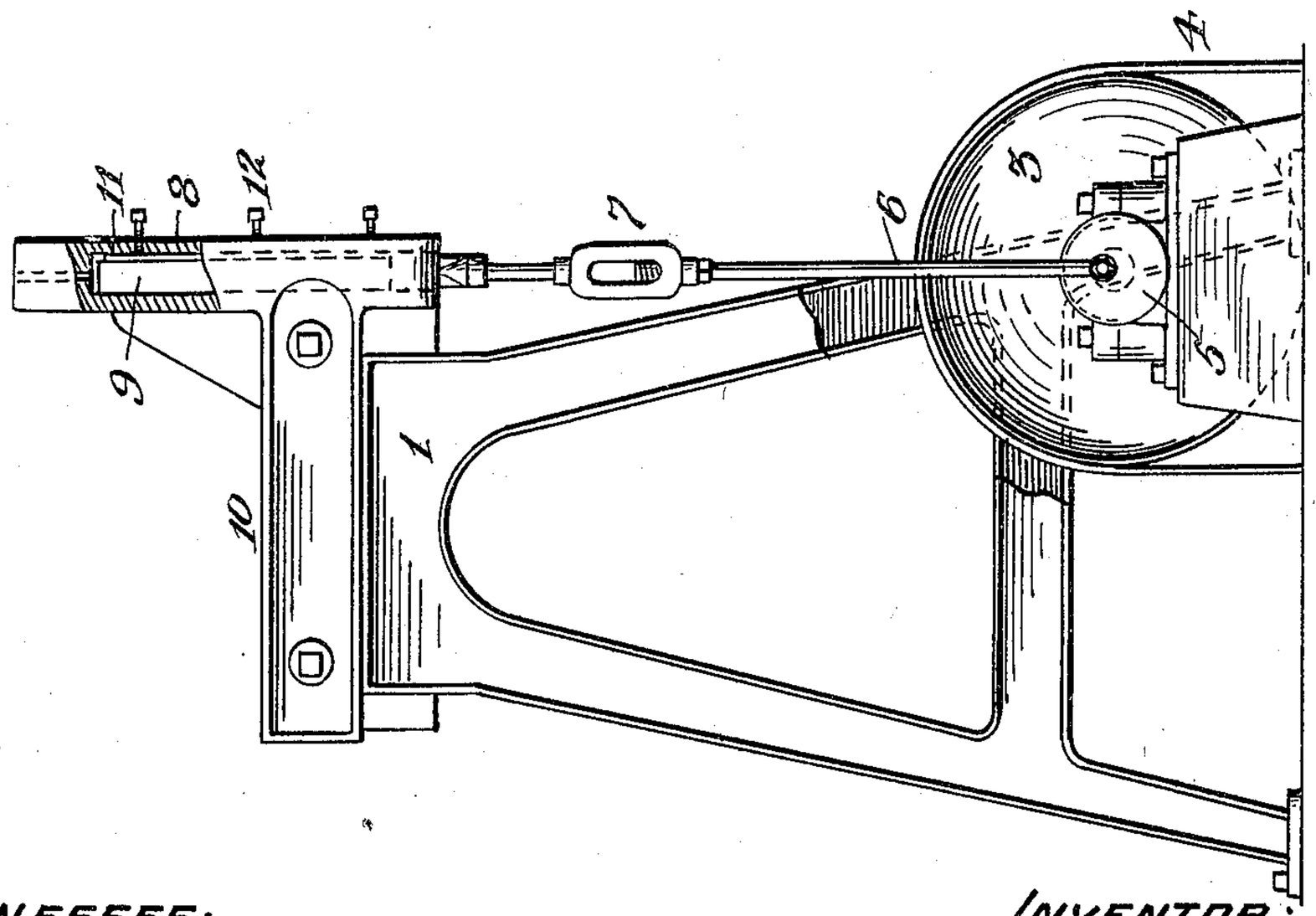


FIG. 1



WITNESSES:

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Leon Boillot

INVENTOR:

Benjamin F. Mackall

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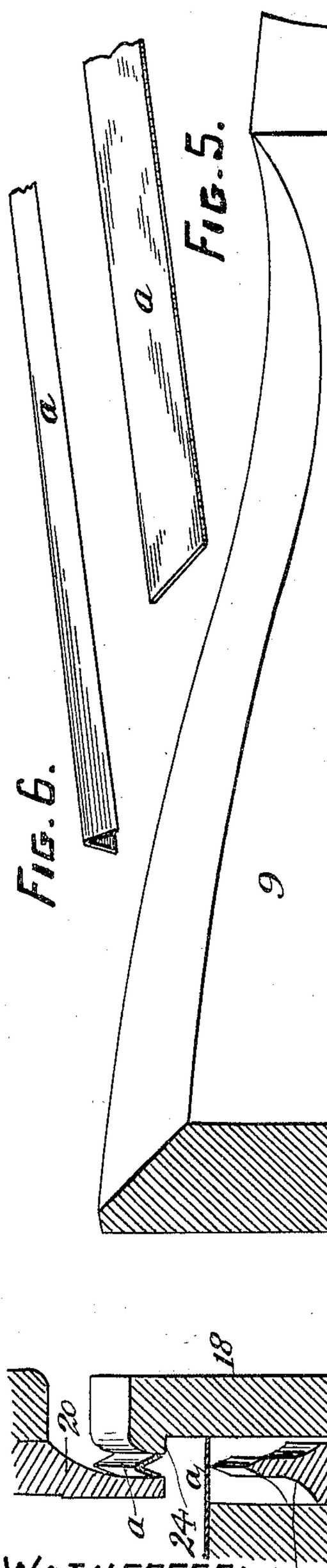

FIG. 5.

FIG. 6.

FIG. 3

FIG. 4

WITNESSES:

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PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PT'G. CO. NEW YORK.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. MACKALL, OF SAN FRANCISCO, CALIFORNIA.

MACHINE FOR MAKING METAL BINDING-STRIPS.

SPECIFICATION forming part of Letters Patent No. 793,728, dated July 4, 1905.

Application filed January 19, 1905. Serial No. 241,851.

To all whom it may concern:

Be it known that I, BENJAMIN F. MACKALL, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Machines for Making Metal Binding-Strips, of which the following is a specification.

In making certain baskets or boxes for holding fresh fruits—such as cherries, plums, peaches, grapes, &c.—thin strips of wood are bent and joined together, and their extending ends are bound and secured by a binding-strip of sheet metal of V cross-section. Such metal strips are ordinarily cut from larger sheets of metal and after the cutting are given the V cross-section in a separate shaping-machine. Thus two operations and two machines are required to produce the V-shaped strip.

The object of my invention is to cut and shape these binding-strips in a single machine and by single movements of such a machine.

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

Figure 1 is an end elevation of the whole machine. Fig. 2 is a front elevation of the same. Fig. 3 is a perspective of the principal operative parts in normal relative position. Fig. 4 is a detail section to show the operation of the combined cutters and shaper. Fig. 5 is a view of a cut strip or blank. Fig. 6 is a view of such strip after it has been shaped.

In the drawings the machine-frame is shown at 1, and 2 is a driving-shaft which derives motion in any suitable manner, as by the pulley 3 and belt 4. At each end of the driving-shaft is a crank-disk 5, to which is eccentrically pivoted a connecting-rod 6. This rod is preferably made in two parts, joined by a turnbuckle 7 in order that the rod can be accurately adjusted as to length.

The top of the machine-frame is formed as a flat table 10, and at the front ends are standards 8, recessed, as shown, to form vertical guides. In these guides is a vertically-movable cross-head 9, the edges of which fit the guides and slide therein. A plate or strip 11 may be set into the guides and adjusted by set-screws 12 in order to take up wear and make the proper snug, although easy, fit desirable for a reciprocating movement. The slides of the cross-head are extended below the guides and are jointed to the connecting-rods 6.

By reference to Fig. 3 it will be seen that at the front of the table is set the stationary shearing member or die 13. This part 13 is adjustable vertically by screws 14, working in threaded lugs 15 on the main frame, in order to give it its proper position relatively to the table and to the vertically-movable cutter 20. The movable cutter is secured in a rabbet at the rear of the cross-head and has an inclined and substantially flat lower edge 16. It moves with the cross-head, to which it is secured by screws 17, and in connection with die 13 makes a shearing cut from a sheet of metal *a*, projecting forward of the table, as shown in Fig. 4. The front of the cutter 20 is curved upwardly and forwardly in order to provide, in connection with the front gage-plate 18, a passage for the discharge of cut and shaped strips. The plate 18 is secured to the cross-head by bolts or screws passing through bracket-clamps 19 on the cross-head. It has a curved edge 21 at its upper end, is set opposite the table, and is arranged at the proper distance so that a sheet of metal lying on the table and pushed forwardly against the gage, as in Fig. 4, will be sheared off by the downward movement of the cross-head and cutter 20. The sheared portion is of proper length and width to form a binding-strip for a box or basket. The gage-plate is undercut, as shown in Figs. 3 and 4, so as to form a shoulder 24, which is substantially in the plane of the flat edge of cutter 20. Secured to the stationary die or cutter by countersunk screws 22 is a former 23, having a V-shaped upper cross-section.

When a piece of sheet metal has been pushed over the table and against the front plate or gage, the next downward movement of the cross-head will shear off a strip of the proper width. Since the front plate moves with the cross-head, the strip will be forced by the edge of cutter 20 and the shoulder 24 against the former 23, so that the strip is bent into the requisite V cross-section. The piece so cut off and bent has a slight resiliency, which enables its free edges to spring slightly outward

between the movable knife and the front plate, as shown in Fig. 4. The operator continues to push the sheet of metal forward, so that at each downward movement of the cross-head a strip is sheared from the sheet and is given the proper V shape by the former. On the next upward movement of the cross-head each V-shaped sheet is crowded up against the preceding formed strip, and so the binding-strips cut and bent by one operation are delivered through the space between the movable cutting-knife and the front plate.

I do not limit myself to the constructions and arrangements herein described and shown in the drawings, as I desire to avail myself of such modifications and equivalents as fall properly within the spirit of my invention.

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

1. In a machine for the purposes described, the combination of a table or support for metal sheets, a stationary shear or die, a movable shear, a gage-plate moving simultaneously with said shear, and a former between the stationary die and said gage-plate; all constructed and arranged, so that the shear and gage-plate are brought to bear simultaneously upon the exposed part of the sheet, the shear severing a strip, and the shear and gage-plate forcing the severed strip against said former.

2. In a machine for the purposes described, a support for metal sheets, a stationary shear or die, a vertically-movable shear, a gage-plate connected so as to move with said shear and separated by a space from said stationary die, a former in said space, and means for operating the movable shear and gage-plate whereby they are caused to bear simultaneously upon that part of the metal sheet exposed across said space.

3. In a machine for the described purposes, a support for metal sheets, a stationary die or shear, a vertically-movable cross-head, a movable shear connected to said cross-head, a gage-plate connected to said cross-head and separated by a space from the stationary die, a shoulder on said gage-plate in substantially the plane of the edge of the movable shear, and a former in the said space; whereby the movable shear severs a strip from the metal sheet, and said shear and said shoulder press the severed strip against the former.

4. In a machine for cutting strips from metal sheets, a vertically-moving shear, a vertically-moving gage-plate having a shoulder in the plane of the cutting edge of said shear but separated from it, and a former beneath and in line with said space, against which a severed strip is forced by said shear and shoulder.

5. In a machine for cutting strips from metal sheets, the combination with shearing devices and a bending former or die, of a vertically-movable plate, spaced away from the shearing devices and adapted both to gage the width of the strip and to press said strip against the former.

6. In a machine for cutting strips from metal sheets, the combination of a movable shear, a movable gage-plate separated therefrom by a space and having a shoulder, a former beneath said space, and means for operating said shear and gage-plate; whereby a strip severed from a sheet is forced by said shear and shoulder against the former and bent, and is then removed from said former by contact with the opposing walls of said shear and gage-plate during their return movement.

7. In a machine for cutting strips from metal sheets, a vertically-moving shear and a vertically-moving gage-plate connected and moving simultaneously therewith, and separated therefrom by a space which forms an upward discharge-passage; a former beneath said space, and means for supporting a sheet so that its edge can project beneath said space and above said former; whereby severed strips bent against said former are removed upwardly in said space and are discharged by the pressure of succeeding strips.

8. A machine for cutting strips from metal sheets, comprising, a support for such sheets, a stationary die or shear, a vertically-moving cross-head, a reciprocating shear or cutter connected to said cross-head, a movable gage-plate connected to said cross-head, having a shoulder and spaced apart from both the reciprocating cutter and the stationary die, and a former in the space between said gage-plate and die, all substantially as described and shown.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 15th day of November, 1904.

BENJAMIN F. MACKALL.

Witnesses:
L. W. SEELY,
M. R. SEELY.