

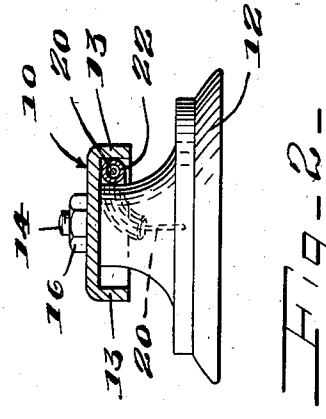
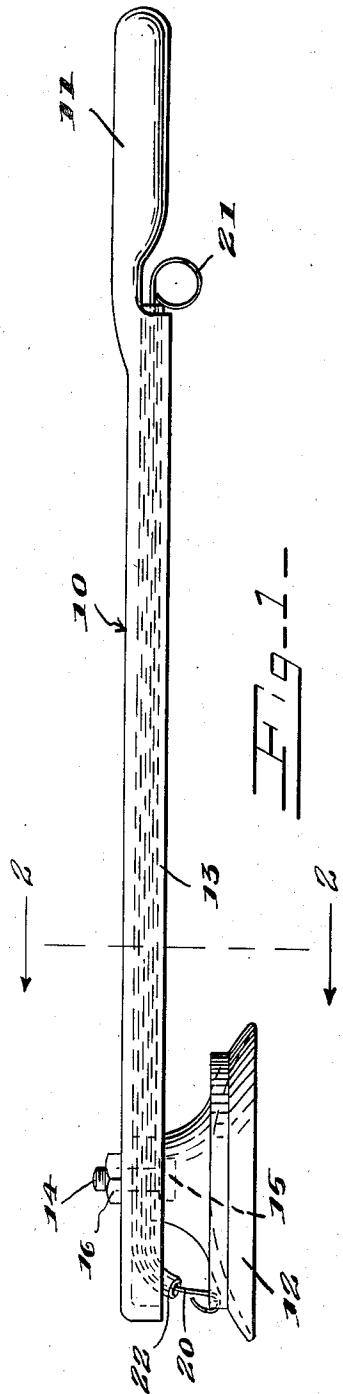
June 23, 1942.

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2,287,576

HANDLING DEVICE

Original Filed Nov. 21, 1940



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UNITED STATES PATENT OFFICE

2,287,576

HANDLING DEVICE

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Original application November 21, 1938, Serial No. 241,569. Divided and this application July 23, 1940, Serial No. 346,979

1 Claim. (Cl. 294—64)

This invention relates to a device for handling material or articles having a flat or plain surface, such for example as sheets of metal, and more particularly the invention has to do with a device of this type employing a suction cup provided with a suitable handle and means operable to break the vacuum of the suction cup to permit release of the material.

This application constitutes a division of my copending application, Serial Number 241,569, filed November 21, 1938, for Handling device since matured into Patent #2,212,755.

The invention has as an object a device of the type referred to embodying a particularly economical construction including the provision of means for breaking the vacuum of the suction cup, which means is conveniently operable by a finger of the hand with which the device is being manipulated.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is a side elevational view of a device embodying my invention.

Figure 2 is a sectional view taken on line 2—2, Figure 1.

Lifting devices of the type herein referred to and disclosed in my copending application are used extensively for handling flat sheet material, such as sheet steel, and the device herein specifically referred to is employed principally for the lifting and manipulating of relatively small pieces of sheet material, such for example as the placing of blanks of sheet material in punch presses and the like. This device is entirely manipulated by one hand of the operator and consists of a handle 10 provided at one end with a hand grip 11 and having a suction cup 12 secured at the opposite end thereto. The handle 10 may be of any suitable size or construction to fit the needs of the use to which the device is to be put. As here shown, the handle 10 consists of a channel shaped member having depending side flanges 13 and being provided at one end with an aperture to receive the stud 14, the head 15 of which is securely embedded in the suction cup 12, the stud being detachably secured to the handle as by nut 16.

It will be understood that the suction cup 12 is molded or otherwise formed from elastic material such as rubber or the like, and is formed with a concave surface which, when pressed against the sheet material, forms a vacuum caus-

ing the cup to adhere with considerable force to the material.

The vacuum, effected by the engagement of the concave surface of the suction cup, is broken to permit the cup to be released from the material being handled by flexing a peripheral portion of the cup upwardly or away from the surface of the material. This flexing of the cup is effected by a flexible member such as wire 20 secured at one end to the cup adjacent the peripheral edge thereof extending axially of the handle 10 and terminating in a finger engaging loop or portion 21 arranged in juxtaposition to the hand grip 11, whereby it may be engaged and manipulated by the index finger of the hand in which the device is gripped. The arrangement is such that when the loop 21 is moved toward the hand grip 11, the edge of the cup 12, adjacent the point where the outer end of the wire 20 is secured thereto, will be moved upwardly or in a direction substantially parallel to the axis of the cup. Preferably, the wire 20 is slidably arranged in a tubular guide member 22 arranged in the channel structure of the handle 10.

The device described has proven to be a particularly efficient and convenient means for rapidly handling relatively light weight articles, such as feeding blanks into a punch press as previously alluded to. The device is entirely manipulated by one hand, leaving the operator free to actuate the machine with the other hand. The cup 12 is moved into engagement with the blank with a slight pressure which may be effected by a striking motion thus establishing a vacuum between the cup and the blank. The blank may be then lifted and positioned by the device, and is instantly released by simply pulling the loop trigger fashion toward the hand grip 11.

What I claim is:

1. A manually manipulated handling device of the type described comprising a handle portion channel shaped in cross section and provided with a hand grip at one end thereof, a flexible suction cup secured to the opposite end of the handle portion, a wire secured at one end to said cup adjacent the peripheral edge thereof and extending axially through said channel formation toward said hand grip, the opposite end of said wire being formed with a finger engaging loop arranged below said handle in juxtaposition thereto, said loop being movable toward the handle by engagement with one finger while the hand grip is gripped by the hand, and said wire being operable during such movement of the loop portion to flex a portion of said cup out of engagement with the surface to which it is secured.

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